THE

# SOUTHERN AGRICULTURIST.

**FEBRUARY, 1839.**

## PART I.

### EDITORIAL AND ORIGINAL.

The following Letter and Memorial will be read with interest. We trust that the subject will be deeply pondered on, and that something beneficial will be the result. To the Monticello Society, we say "go on"—do not despair—its members are proceeding rightly, and must attain their object by perseverance.—EDITOR.

*Memorial of the Monticello Society to the Legislature of the State.*

MR. EDITOR,—The memorial herein enclosed for publication, was presented at the last session of the Legislature, and ordered by that body "to be laid on the table." Referring to Vol. XI., No. 5, of your periodical, it will be seen our first petition assumed different ground from that taken in the present document; so that the result, in each case, is conclusive of one fact, namely, that there exists little hope of "the collected wisdom" of the country being persuaded into a consideration of those primary interests so intimately involving the welfare of our population.

The Geological Survey, recommended by the Ex-Governor, and the Report of the Committee on this portion of the Message, if carried into operation, would, no doubt, "enlighten the steps of practical industry:" but

would such a step come up to the wants of the community?

In my humble apprehension, the planters would prefer the Legislative appointment of a State *Agricultural* Surveyor; such an officer as the Rev. Mr. Coleman, of Massachusetts, who, besides having capacity to explore the geological and mineralogical resources of his State, is required, by the functions of his office, to collect and publish all the agricultural statistics that are or may be useful to the commonwealth. No one, of ordinary intelligence, can deny that such a survey would be of eminent service.

But a strict and exclusive geological survey—such as was made some fifteen years since in North Carolina, or such as has been made more recently in other States—it is clear, is less beneficial to the commerce and enterprise of an agricultural population; and the truth of this observation is demonstrated by what has transpired in North Carolina. The geological survey of that State, as conducted by Professor Olmsted, was complete and satisfactory; and yet, the Chief Magistrate, in his message of November last, deems it necessary to observe—"much may doubtless be effected by an improved system of husbandry, under proper stimulants and inducements. If we turn for a moment, he adds, to the improvements successfully achieved in Massachusetts with decidedly inferior climate and soil, our doubts will be removed. She greatly outstrips us in our peculiar interests." He then refers the Legislature to the survey (an agricultural survey) of the Rev. Mr. Coleman, and "recommends that a similar survey be authorized" in North Carolina. It seems that Governor Clark, of Kentucky, had in view the same character of survey, when, in his last message he remarks, that "to enable a deliberative body, clothed with Legislative powers, to act understandingly upon any subject whatever, connected with the general advancement and prosperity of the community, it is highly important that it should be minutely informed of the pursuits, products and condition of the country." He accordingly suggests "the propriety of enacting a law by which the amount, kind and value of the agricultural products, of the manufactured articles, of the commerce and the exportation and importation of the State, can be

satisfactorily ascertained and reported;" and also affirms that, by the adoption of such a plan, "to ascertain and make public these statistical facts, an additional incentive would be imparted to the citizen, the aggregate amount of the business of the country greatly enlarged, and the Legislature enabled to offer, in the passage of wholesome laws, such encouragement as would create a laudable emulation among the people, calculated in its effects to increase and expand the wealth and industry of the community." If, therefore, the Legislature of South-Carolina is inclined to aid the agriculture of the State, and to aid it successfully, nothing more is necessary than to follow in the wake of other States of the confederacy: but if it be her policy to disregard the experience and observation of others, she has merely to continue *the hue and cry* against science as connected with agriculture; and to pursue that course which only befits a niggardly and contemptible system of legislation. It is a very easy affair, when the subject-matter of a petition is not understood by a collective body, for such an assemblage to give it "the go-by;" and it is not very laborious, especially on the approach of the Christmas holidays, for the same body to "resolve" that a committee be instituted to inquire into *the expediency* of a geological survey, and *report* at a succeeding session the result of their investigations. In these remarks, I would be understood as attaching no censure to the Committee on Agriculture, who, so far as I am informed, were anxious to adopt a definite system of immediate and practical legislation.

Provided you may have ready access to any such record, it is desirable you should publish (in connexion with this memorial) the act of any State authorizing fairs, and representing their advantages. I am induced to urge this request at the instance of such members of the association as are determined upon renewing the petition.*

B. F. DAVIS, *Recording Sec'ry.*

*Monticello, Jan. 8th,* 1839.

* To this request we will hereafter comply, if we can lay our hands on several such records, which now are mixed among other papers.

*To the Honorable the Speaker,*
*and other Members of the House of Representatives:*

The Memorial of the Monticello Planters' Society respectfully sheweth, that your memorialists have been for some time engaged in attempts for the improvement of agriculture, and they think it an object well deserving the attention and protection of the Legislature. It cannot have escaped the attention of any observer, that the soils of our State, from a wasteful and imperfect method of cultivation, are in a state of gradual deterioration, and if this be not attended with absolute impoverishment and depopulation, it prevents the State's making such progress in wealth, improvement and population as its natural resources would allow, and as would enable it to keep pace with other portions of our general country. Our State is made tributary to others, to a very large extent, for products of agriculture which it is perfectly capable of producing for itself, and which would, of themselves, afford the means of renovating our exhausted soils. A short-sighted avarice will always grasp at the largest present profit, though at the hazard or with the certainty of prospective loss. Our great staple, cotton, beneficent gift of providence, as it is, affords no means of renewing the soil which it has impoverished. By combining its cultivation more largely with the production of those articles which are capable of adding to the fertility of the soil, perhaps even more cotton might be produced with less labor, and on a smaller surface. And though the present state of things may be regarded with indifference by an individual who contemplates, when he has exhausted his land here, to make his escape to more fertile regions, yet the effect on the *State* cannot but be most deleterious, and alarm in the highest degree, the pride and the patriotism of every South-Carolinian.

Your memorialists would respectfully suggest that it may be in the power of the Legislature, in some degree, to afford a remedy by the distribution of small premiums for successful agriculture, to be appropriated and disbursed by commissioners selected for every district. These might be bestowed for the most successful efforts in reclaiming, preserving, or improving land; for the

finest specimens of domestic animals—for improved implements of husbandry—for ingenious productions of domestic industry, or such other objects as the commissioners might determine. The measure might be rendered more efficacious, by the appointment of annual or semi-annual fairs, for the exhibition and sale of the productions of agricultural industry and the distribution of premiums, together with a similar annual exhibition at the seat of government, and the distribution of enlarged premiums to the finest specimens amongst those which have contended successfully in the districts. This has been done, as your memorialists are informed, in many of the other States of the Union, with the most beneficial effect, and they cannot but believe that it would be attended with similar advantage to the citizens of this State.

It is of importance that the people should be assembled in well regulated numbers, and for laudable purposes. Such intercourse tends to elevate their character and intelligence, and to promote mutual benevolence. The pride and zeal of improvement is awakened, and practical knowledge gained, which would probably be obtained in no other way. An ideal value will be attached to the premiums distributed, giving them an importance and effect far beyond any thing to be expected from their intrinsic value.

Your memorialists respectfully submit the matter to the consideration of your honorable body.

WM. HARPER, *President,*
*On behalf of the Monticello Planters' Society.*

*Meteorological Observations, taken near Robertville, Beaufort district, So. Ca.,* 1838. *Lat.* 32° 34′ 48″ *N. Long.* 81 *W. Distance from the sea, about* 50 *miles. Face of the country, open piny woods, interspersed with Cypress ponds. By* SIDNEY SMITH, M. D.

| MONTHS. | THERMOM'TER. Maximum | Minimum | Mean | Range | Well-Water. | BAROMETER. Maximum | Minimum | Range | WINDS. | WEATHER. No. Fair days | Cl'dy or rai'y | Rain in inch's | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JANUARY,.. | 78 | 27 | 53 | 56 | | 29.72. | 29.31. | 41 | N. W. | | 12 | | |
| FEBRUARY. | 68 | 22 | 48 | 46 | | 29.72. | 29.10. | 62 | N. W. W. | 14 | 19 | | |
| MARCH..... | 87 | 32 | 56½ | 55 | | 29.75. | 29.20. | 55 | N.E. S. W. | 19 | 12 | | |
| APRIL..... | 84 | 41 | 64½ | 43 | 62 | 29.78. | 29.25. | 53 | S. W. N. E. | 24 | 6 | | |
| MAY ..... | 84 | 49 | 68 | 67½ | 62½ | 29.66. | 29.14. | 52 | S. E. S. W. | 25 | 6 | | |
| JUNE..... | 89 | 60 | 65¾ | 39 | 65 | 29.68. | 28.99. | 69 | S. E. S. W. | 16 | 14 | 7 | |
| JULY ..... | 97 | 70 | 82 | 27 | 70 | 29.61. | 29.45. | 16 | S S E S W | 25 | 6 | | |
| AUGUST.... | 96 | 70 | 81½ | 26 | 73 | 29.66. | 29.45. | 21 | S. E. S. W. | 23 | 8 | 8 | |
| SEPTEMBER | 90 | 56 | 75 | 34 | | 29.67. | 29.23. | 44 | N. E. S. E. | 23 | 7 | 3¼ | |
| OCTOBER... | 79 | 34 | 61½ | 45 | 68 | 29.90. | 29.42. | 48 | N.E. N.W. | 21 | 10 | 2 | |
| NOVEMBER. | 76 | 22 | 52½ | 54 | 58 | 30.08. | 29.50. | 58 | N. E. N.W. | 26 | 4 | 11-16 | |
| DECEMBER. | 73 | 19 | 45 | 54 | 52 | 30.10. | 29.54. | 56 | N.E. N. W. | 24 | 7 | 1½ | |
| SUMMARY. | 97 | 19 | 63½ | 78 | | 30.10. | 28.99. | 1.11. | | 239 | 101 | 20 | days observed. |

*Sample of the Days of each Month remarkable for heat or cold.*

| MONTHS | COLDEST DAYS. Day | M | N. | A. | Av. | WARMEST DAYS. Day | M | N. | A. | Av. | Wind. | Wind | REMARKS, &c. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| January, - | 22 | 23 | 40 | 38 | 37 | 17 | 65 | 78 | 73 | 72 | N. W. | West. | Remarkably mild. |
| February, | 17 | 22 | 38 | 35 | 32 | 16 | 65 | 68 | 52 | 62 | N. W. | S. W. | February, all wintry. |
| March, - - | 18 | 32 | 55 | 50 | 44 | 31 | 63 | 87 | 78 | 75 | N. W. | S.W S | Last killing frost. |
| April, - - - | 13 | 41 | 72 | 65 | 56½ | 24 | 61 | 84 | 80 | 72½ | S. W. | South | Light frost, Ther. 42° |
| May, - - - | 17 | 61 | 84 | 78 | 72½ | 26 | 49 | 70 | 65 | 60 | S NW | N.NW | Spring dry and backward |
| June, - - - | 7 | 60 | 76 | 71 | 68 | 29 | 76 | 89 | 75 | 80 | South. | S. W. | A very seasonable month |
| July, - - - | 14 | 70 | 86 | 82 | 78 | 30 | 78 | 97 | 88 | 87½ | South. | South. | A drought of 33 days, from |
| August, - - | 22 | 70 | 82 | 76 | 76 | 13 | 80 | 96 | 83 | 88 | E.N.E | W. | 14th July to 16th Aug. |
| September | 24 | 56 | 68 | " | 37 | 12 | 73 | 90 | " | 81½ | N. E. | W. | Fall dry, fine for harvest. |
| October, - | 25 | 44 | 64 | 61 | 54 | 30 | 34 | 58 | 52 | 46 | N. W. | N. | 13th Oct. light frost. T. 48 |
| November | 30 | 22 | 55 | " | 38 | 7 | 55 | 76 | 68 | 65½ | N. E. | E. | 30 do. 1st kill. & ice. 34 |
| December, | 24 | 19 | 32 | 22 | 24½ | 5 | 46 | 73 | 66 | 59½ | N. W. | E.S W | Winter cold and dry. |

*Table, shewing the greatest variation of temperature throughout the year, in each month.*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| January | 29, | Thermometer | rose | 37° | to 68° | 31′ | in 12 | hours. |
| February | 17, | do. | fell | 68 | to 22 | 46 | in 19 | do. |
| March | 27, | do. | rose | 45 | to 78 | 33 | in 8 | do. |
| April | 5, | do. | rose | 42 | to 75 | 33 | in 8 | do. |
| May | 9, | do. | rose | 49 | to 76 | 27 | in 9 | do. |
| June | 8, | do. | rose | 62 | to 81 | 19 | in 8 | do. |
| July | 20, | do. | rose | 78 | to 97 | 19 | in 8 | do. |
| August | 27, | do. | rose | 73 | to 92 | 19 | in 8 | do. |
| September | 17, | do. | rose | 65 | to 90 | 28 | in 8 | do. |
| October | 27, | do. | rose | 47 | to 78 | 31 | in 7 | do. |
| November | 25, | do. | fell | 57 | to 28 | 29 | in 15 | do. |
| December | 1, | do. | rose | 34 | to 66 | 32 | in 8 | do. |

*General Remarks.*—Some occurrences of the year are worthy of notice. We usually have our days of extremest heat in June, which was not the case this year. February was much colder and more wintry than January, and March seemed to have changed place with April. May was but little warmer than April—August was the warmest month, and having the least transitions of temperature, while May exhibited the greatest. October was, on the whole, the season of the most agreeable temperature. It has been observed by Humboldt, that the mean heat of October, almost in every country, is nearer the mean annual heat of the place observed, than that of any other month. In the present instance, however, it will be seen that October was not so near the mean annual heat as April. On the 9th April, we witnessed a very striking and beautiful Aurora Borealis in the North and North-West, a short time after sunset. It was visible for but a few moments, and being the first we ever saw in this latitude, it made a striking impression. The greatest fall of water observed, at one time, was on the 30th June, being two and one-eighth inches. The whole year passed without any very remarkable storm of hail, wind or rain.

The only Barometical changes any ways remarkable, were the following. On the 16th of February, it rose 12 of an inch in 6 hours, and 56 hundredths, in 12 hours. The weather, from being all cloudy, changing rapidly fair, and very cold, on the 4th June it descended rapidly from 29.45 to 28.99, the lowest it ever fell, and was soon followed by a very heavy fall of rain. In July and August, the range was very limited, corresponding to a limited range of the Thermometer. Periods remarkably dry. On the 25th November, the Barometer rose 29 in. in 15 hours, fairing off with a fresh N W. wind, but soon fell again from 29.57 inch. to 28° in. Only on two occasions, in November and December, it ever came up to 30 in., 30.10 in. being the maximum in the tables—the weather being remarkably fair, clear, and cold, and windy. The greatest annual fluctuation of the Bar did not exceed 1.11 in. A small range, considering we are within the zone, in which the annual changes of temperature possess the widest difference, which is between 30° and 60° of lat. In the West-Indies, the Barometrical range seldom ex-

ceeds ¼ in., while in Great Britain it is often as great as 3 inches.

The whole year was most remarkably healthy in the neighborhood—particularly the summer and fall. The ponds and miry places being all the while dry, the sources of malaria were cut off, and no country could have been healthier, with the same inhabitants, either this or the other side of the mountains.

This observation ought not to be lost upon us, inasmuch as it is an incontrovertible evidence of the importance of draining lands for the improvement of health. The peculiarity of the seasons above, effecting, what we have it in our power measurably to imitate and render permanent, through all seasons, by a proper use of the spade and shovel.

As an agricultural year, the past was not the most propitious. The cold and backward spring was unpropitious to small grain, and rather too dry; and the same causes acted very unfavorably to the setting of good stands of cotton. The favorable season of June was the means of saving crops of corn, particularly of early corn; but the long spells of drought in July and August acted most perniciously on the cotton crops—coming at the time of the formation of the fruit, the only time when the plant needs much rain. It received a blight it never recovered from. This drought was by no means local, but extended and continued with a like pernicious effect throughout the south and farthest west—reducing, generally, the average production of this important staple from a third to a half size—some locations more than this.

The advance of the spring market, which I should not be surprised to see above 15 cents for cotton, will show the wonderful influence of a good or bad season, not only upon cotton, but upon the commerce of Europe and America.

## *Maxims of Agriculture, selected from Roman writers.*

*Mr. Editor*,—The accompanying selections from some of the Roman writers on agriculture, will be found curious and interesting. By publishing them you will oblige

A PLANTER.

January 20th, 1839.

*In every art which has been long practised, there are maxims of management which have been handed down from one generation to another;* and in no art are there more of these than in agriculture. Maxims of this sort were held among the Romans in the greatest estimation, and their writers have recorded a number derived from the lost Greek writers, and from their own traditionary or experimental knowledge. A few of these shall be noticed, as characteristic of Roman economy, and not without their use in modern times.

*To sow less and plough better* was a maxim indicating that the extent of farms ought to be kept in their proper bounds. Pliny and Virgil consider large farms as prejudicial, and Columella says, one of the seven wise men has pronounced that there should be limits in all things. "You may admire a large farm, but cultivate a small one;" and the Carthaginian saying, that "the land ought to be weaker than the husbandman," were maxims to the same effect.

*The importance of the master's presence* in every operation of farming, was inculcated by many maxims. "Whoever would buy a field ought to sell his house, lest he delight more in the town than in the country," was a saying of Maro. "Wherever the eyes of the master most frequently approach," says Columella, "there is the greatest increase." It is justly remarked by the Rev. A. Dickson, that though "every person knows that the presence and attention of the master is of great importance in every business; yet every person does not

know, that in no business are they so important as in farming."*

*That more is to be gained by cultivating a small spot well than a large space indifferently*, is illustrated by many sayings and stories. "A vine-dresser had two daughters and a vineyard; when his eldest daughter was married, he gave her a third of his vineyard for a portion; notwithstanding which, he had the same quantity of fruit as formerly. When his younger daughter was married he gave her the half of what remained, and still the produce of his vineyard was not diminished."† Pliny mentions a freeman, who having much larger crops than his neighbours, was accused of witchcraft and brought to trial. He produced in the forum a stout daughter, and his excellently constructed iron spades, shears and other tools, with his oxen, and said, "these Romans, are my charms." He was acquitted.‡

*Ostentatious or profuse culture* is not less condemned than imperfect culture. "The ancients," says Pliny, "assert that nothing turns to less account than to give land a great deal of culture. To cultivate well is necessary, to cultivate in an extraordinary manner is hurtful. In what manner then," he asks, "are lands be cultivated to the best advantage?" To this he answers, "In the cheapest manner, if it is good;" or "by good bad things," which, he says, were the words in which the ancients used to express this maxim.

*Industry* is recommended by numerous maxims. "The ancients," says Pliny, "considered him a bad husbandman who buys what his farm can produce to him; a bad master of a family, who does in the day-time what he may do at night, except in the time of a storm; a worse who does on common days what is lawful on holidays; the worst of all, who on a good day is employed more within doors than in the fields."‖

*Kindness and humanity to servants and slaves* is strongly recommended. "Slaves," says Varro, "must not be timid nor petulant. They who preside must have some degree of learning and education; they must be frugal,

* Husb. of the An., i. 206. † Col., lib. iv. cap. 3.
‡ Nat. Hist., lib. xviii. cap. 6. ‖ Ib. cap. 6.

older than the workmen, for the latter are more attentive to the directions of these, than they are to those of younger men. Besides it must be most eligible that they should preside, who are experienced in agriculture; for they ought not only to give orders, but to work, that they may imitate him, and they may consider that he presides over them with reason, because he is superior in knowledge and experience: nor is he to be suffered to be so imperious to use coercion with stripes rather than words, if this can be done. Nor are many to be procured of the same country, for domestic animosities very often arise from this source. You must encourage them who preside, by rewarding them, and you must endeavour to let them have some privilege, and maid servants wedded to them, by whom they may have a family; for by these means they become more steady and more attached to the farm. On account of these connections, the Epirotic families are so distinguished and attached. To give the persons who preside some degree of pleasure, you must hold them in some estimation; and you must consult with some of the superior workmen concerning the work that is to be done: when you behave thus, they think that they are less despicable, and that they are held in some degree of esteem by their master. They become more eager for work by liberal treatment, by giving them victuals, or a large garment, or by granting them some recreation or favour, as the privilege of feeding something on the farm, or some such thing. In relation to them, who are commanded to do work of greater drudgery, or who are punished, let somebody restore their good will and affection to their master by affording them the benefit of consolation."

*Knowledge in matters relative to agriculture* is inculcated by all the rustic authors. "Whoever," says Columella, "would be perfect in this science, must be well acquainted with the qualities of soils and plants; must not be ignorant of the various climates, that so he may know what is agreeable, and what is repugnant, to each; he must know exactly the succession of the seasons, and the nature of each, lest, beginning his work when showers and wind are just at hand, his labour shall be lost. He must be capable to observe exactly the present temper of

the sky and seasons; for these are not always regular, nor in every year does the summer and winter bring the same kind of weather, nor is the spring always rainy, and the autumn wet. To know these things before they happen, without a very good capacity, and the greatest care to acquire knowledge, is, in my opinion, in the power of no man."* To these things mentioned by Columella, Virgil adds several others. "Before we plough a field to which we are strangers," says he, "we must be careful to attain a knowledge of the winds, from what points they blow at the particular seasons, and when and from whence they are most violent; the nature of the climate, which in different places is very different; the customs of our forefathers; the customs of the country; the qualities of the different soils; and what are the crops that each country and climate produces and rejects."†

*The making of experiments* is a thing very strongly recommended to the farmer by some of our authors. "Nature," says Varro, "has pointed out to us two paths, which lead to the knowledge of agriculture, viz. experience and imitation. The ancient husbandmen, by making experiments, have established many maxims. Their posterity, for the most part, imitate them; we ought to do both, imitate others and make experiments ourselves, not directed by chance, but reason.‡

---

## *Cultivation of Irish Potatoes.*

Potatoes delight most in a rich loam, but not too moist. Wet land produces too much top and watery fruit, which will not keep through the winter, and is always strong and unpleasant to the taste. Very dry land produces a small crop and knotty fruit. Land that is apt to bake (as we commonly phrase it,) should also be avoided.

For this crop, the earth should be well ploughed, so as to pulverize and clear it of weeds. It should have nothing about it to shade it—a great error in the cultivation of po-

* Col., lib. i. præf. † Virg. Georg., i. 1. ‡ Var. lib. i. cap. 18.

tatoes is, too much hilling of them. I have found, by many years experience, that if potatoes are planted in a mellow soil, they need scarcely any hilling. They will bed themselves at that distance from the surface of the ground, which gives them the greatest advantage to procure nourishment. This depth, I have observed, is generally about four inches; and this depth the plant finds by something which I will venture to call instinct. If the earth in which you plant potatoes should be hard, and not yield to the pressure of the roots, it will then be necessary to hill them; but great care must be taken not to hill them too much: never let them be covered above four inches; and this hilling must be given with discretion; for if they have bedded themselves (as they will in mellow land) four inches, and you add four inches more of earth, you suffocate the fruit. Take an example; potatoes, just as they begin to blossom, begin to form their bulbs. If you leave them now, the fruit will grow rapidly; but if you should add earth to the hill, the young bulbs, for want of that air which can prevade four inches of earth, will cease to grow, and others will sprout above them; and this will be the progress of nature so long as you continue to burden them with earth. Therefore, to procure an early crop of potatoes be sure to give them your last earth as soon as the plant is big enough to receive it. When they know (excuse the expression) that you have left your earthing, they will begin to vegetate, and increase with great rapidity, but will make no progress while you keep burdening and stifling them. Thus much as to the culture.

A word relative to the time of gathering this crop must conclude these remarks. Every production of the earth has its maturity. If your harvest potatoes, before they are ripe, the juice will be crude, they will be unpleasant to the taste, and will not keep so well as if suffered to grow longer. The sign of ripeness in this fruit is the fading of the leaf and shrinking of the stock. This is remarkable in almost all bulbous roots, especially the onion and potato, that they receive their first nourishment from the root, and finish their growth by what they receive from the top.

EXPERIENCE.

Pendleton District.

### *Preparation of Cotton Seed for Planting.*

*Mr. Editor*,—Every cotton planter is aware, that in planting his seed, many of a defective kind are put into the ground. These have enough of vitality in them to sprout; but the plants from them are always defective, and never mature their fruit as well as plants from healthy seed.

To secure healthy seed many planters are at the trouble of selecting their seed one by one, which, though a very good plan, is too tedious for general practice. Their plan is to pick out from among these seed, such as appear full and plump—but this plan sometimes fails, as it is not every seed that appears best that is actually so. With them as with men, appearances deceive. A more simple, more expeditious, and surer plan for selecting good seed, is to procure a large tub. Fill this with salt water (fresh will do,) about half full; into this drop (holding it up as high as the hand can) one or two quarts of cotton seed at a time. All the full and perfect seeds will sink to the bottom of the tub, while the defective ones will float on the top of the water. These should be skimmed off with the hand. Continue to throw in seed after the manner described above, until you have collected as much seed as you want.

If you are ready to plant, the seed may be left in the tub of water during the night—but if the weather be warm, and the land dry, I would not advise doing so, unless the water has been well salted. The salt on the seed is a great help, it will attract moisture to the earth around the seed, and thus cause them to germinate much sooner. If any one wishes to be convinced of this, let him, in dry weather, sprinkle a little salt upon a piece of ground, and examine it the next morning. While all the earth around will be apparently parched, the salted ground, from having attracted moisture during the falling of the night dews, will appear actually wet.

Your obd't serv't,

A COTTON PLANTER.

## *Silk Culture.*

Our farmers are at length becoming fully conscious of the important advantages to be derived from the extension of the silk culture in this country. With that cautious spirit, which teaches our people to have faith in nothing which they have not seen with their own eyes, or tested by their own experience, a large number of delegates met in convention at Baltimore, during the month of December last, to take into consideration the various topics connected with this subject. The Convention was composed of delegates from eleven States, besides the District of Columbia. Their published proceedings are now before us, and to them we acknowledge ourselves much indebted for many hints contained in this article.

That it is highly desirable the silk culture should be introduced into our country, will appear obvious to any one who will devote a moment's reflection to the subject. By the Custom-House returns, it will be seen that the increased consumption of silk in the United States, for the last few years, has been scarcely exceeded in the history of any other similar staple. In 1821, the amount of imported silk fell short of $4,000,000—in 1825, it had risen nearly to $10,500,000; while in 1836, it had already reached the enormous sum of $22,136,954. The silks thus consumed, came principally from France, India, Italy and England; and it becomes an important question of national economy to ask, what do we return in exchange? Formerly, when the consumption was small, the exportation of bread stuffs from the Middle and Northern States, and the cotton, rice and tobacco of the South, furnished some balance for our expenditures in this particular. But, for years back, the North and East, instead of exporting bread stuffs, have become importers to a large amount; and the cotton, rice, and tobacco of the South can scarcely repay the foreign debt which these States yearly contract. With such a state of commercial exchange, the balance of trade must be against us—and do what we will, and in spite of all the banks in the country, there will be large holes in our pockets, which

will let out all the specie we may collect. Our people are too alert to their interest not to see this. Indeed many of them have seen and felt it already; and the great fever which now pervades the country—called "the silk fever" is, in our opinion, the surest indication, that good must come out of it.

If silk can be successfully raised in this country, a great advantage in our national prosperity will be gained; and by that homely, though not less true maxim of economy, that "a penny saved is a penny gained," we will save just as many millions to our people as is now sent away to purchase this commodity.

Can the silk culture be properly introduced amongst us?"

To the affirmation of this question, the information elicited at the late silk convention, bears ample testimony. Mr. Gideon B. Smith, of Maryland, in addressing the convention, stated, that from his own experience, and from the testimony of the most respectable people in every State in the Union, he was warranted in saying that silk could be grown in every part of our country. He had been for twelve years past, engaged more or less, intimately in the business. For seven years he had kept an experimental cocoonery, for the express purpose of obtaining and diffusing information on the subject; and during all that time not a single instance of its failure had been made known to him, which, in the remotest degree, could be attributable to either climate or soil. On the contrary, he had been able to prove, conclusively, that the climate of our whole country was better adapted to the silk culture than that of any other country, except China, and ours suffered nothing even in comparison with that country itself.

Attention to the silk culture, (says Roberts,) in his Silk Manual, "appears to have been paid at a very early period in North-Carolina, by the ladies, by whom it was a very fashionable occupation, and who were in the habit of sending their raw silk to England. As far back as 1755, Mrs. Pinckney, a lady distinguished alike by her patriotism and excellently improved mind, took with her to England a quantity of superior silk, sufficient to make three complete dresses. One of them was presented to

the Princess Dowager of Wales, another to Lord Chesterfield, and the third being retained by her, was a few years since in possession of one of her daughters in Charleston. Even at this early period, these American productions were allowed by competent judges to be equal to any ever imported into England. The dress in possession of Mrs. Pinckney, Mrs. Horry, in Charleston, owned in 1809, still in a good state of preservation, and remarkable for its beauty, firmness and strength. Though the quantity of raw silk exported from this country was always small, yet its quality, according to the certificate of Sir Thomas Lombe, the eminent silk manufacturer, was excellent, having as much strength and beauty as that of Italy."

In Gov. Glen's History of South-Carolina, we find that in 1755, the same year alluded to above, by Mr. Roberts, as many as 3,416 lbs. of silk were exported from South-Carolina,—while in Georgia, only three years later, we find no less a quantity than 10,000 lbs. of silk among the exported articles of that State. The truth is, silk can be, and has been, raised in every portion of our country. The climate throughout the entire United States is suited to it. Had we ever been skeptical on this point, Mr. Olmsted, of Connecticut, a gentleman who has devoted much of his time to the silk culture, would have relieved us of our doubts, by his late exhibitions of domestic silk in our city. Of this gentleman, and his experiments, the "Augusta Constitutionalist" uses the following language, for the truth of which we can ourselves vouch, as the same facts and exhibition were presented to us in Charleston, by the above named gentleman. Mr. Olmsted, says that paper, "who has devoted much of his attention to the subject, and who is now on a visit to the South, was kind enough to exhibit to us a number of samples of sewing twist, and raw silk of various colours, which will bear a comparison with any of the same kind imported, and which was raised and manufactured on his own farm, during the past year, by Mr. J. Danforth. The samples exhibited to us were parts of the product of an eighth of an acre of ground, planted as an experiment. We were informed, by Mr. Olmsted, that the trees from which the worms were fed,

were planted between the 15th and 20th of May last, in rows of 3½ feet apart, on land cultivated the preceding year, and of a sandy loam; ploughed up about the middle of September. He commenced gathering the leaves and feeding the 10th of July. The quantity of leaves gathered amounted to 1,194 lbs. The quantity of silk worms fed, 32,000; and the quantity of cocoons produced nine bushels, yielding nine pounds of silk, waste silk and floss, one pound. About 5,000 of the worms were fed on 180 lbs. of leaves, and the product of them was two bushels of cocoons, or two pounds of silk. This establishes the fact that 90 lbs. of leaves of the Morus Multicaulis are sufficient to produce one pound of silk. He commenced plucking the leaves when the trees were four and five feet high, leaving four leaves at the top of the tree. He thinks the products of the eighth of an acre would have been more than 1200 lbs. of leaves; but being short of worms he had use for no more than 1164 lbs. If we take the estimate of 1200 lbs. of leaves to the eighth of an acre, as a basis, the product of an acre would be over 100 lbs. of silk; but allowing even 100 lbs. to the acre, the silk, as manufactured in sewing silk, being worth $10 per pound, the produce of an acre of land would be $1000, besides multiplying the trees for market."

It being established, beyond doubt, that the climate of the United States is suited to the silk culture, we are prepared also to shew, that the culture can be carried on with as much profit as in any other part of the world.

In the Report of the respectable Committee, appointed by the Legislature of New Jersey, to examine this matter, the following argument is justly used. "From most of the silk growing countries of Europe, we have no precise information as to enable us to ascertain what are the profits on any given investment or outlay. The opinion, however, in general, that the profits are large, and there are some circumstances which go to confirm the opinion. Neither the worm nor the white mulberry on which it feeds, is indigenous to the European silk growing countries. For many centuries, after silk fabrics were known in Europe, they were obtained from China by means of caravans, which traversed the whole breadth of the Asia-

tic continent. The Persians were the carriers, and their European customers were so ignorant of the mode in which it was obtained, that they even supposed it to be the fibrous parts of some Chinese plant. It was not until the middle of the sixth century that they were better informed. At this period, two monks, who had been in China, as missionaries, brought a few eggs of the insect, and some seed of the mulberry to the Emperor Justinian, at Constantinople. From this small stock, all the myriads that have been reared in Europe, have proceeded. The culture was first established in Greece, and afterwards extended to Sicily, Italy, France, and some other countries. Now, it is worthy of remark, that in whatever country this culture has been fairly established, it continues to the present day; interrupted, it is true, during periods of war and civil commotion; but only to be recommenced and extended, when those wars or commotions have subsided. The Committee cannot believe, therefore, that if the business had not been a profitable one, it would have thus held its own, and even have been uniformly extended wherever it has been introduced."

The Mammoth State is also alive to the silk interest. The following is an extract from the Report of a Committee of its Legislature at a recent session. The remarks are so apposite in their application to our own State and citizens, that we invite an attentive perusal of them. "The cultivation of silk is an object, perhaps more congenial with domestic habits to the farming population, than almost any other of our household employment. It is calculated, as your Committee believe, to re-establish and maintain that valuable branch of home industry, (the loss of which must finally result in a loss of much national virtue,) and in the promotion of the most delightful relations of rural life. The establishment of extensive manufactories among our people, has already drawn thousands of our families and children from the farm-house; and although your Committee would not speak in terms of disparagement of those important branches of national industry, yet they would earnestly recommend to your consideration the encouragement of those quiet and domestic pursuits which tend to the encouragement of rural labor at home. The rapid improvement which the past

twenty years have made in cotton and woollen machinery, has almost entirely driven the loom and the spinning wheel from our farm-houses; and village factories have nearly depopulated many of our farming districts of this most charming of their household attractions. To again awaken the busy hum of domestic industry in the dwellings of our rural population, to add to the comforts and the happiness of their fire-sides, and to encourage a valuable employment among those, who, from the absence of some attractive and profitable labor, would otherwise spend their time in slothful inactivity, should be alike the pride as well as the pleasure of our legislators. The example of several of our sister States, in encouraging, by a State bounty, the growth of the mulberry, and production of silk, has been attended with the most beneficial results. Lands, heretofore worthless, have been planted with the mulberry, and tracts of exhausted, as well as naturally sterile soils, are now becoming productive in bearing their annual harvest to the silk worm. It is a tree, wisely ordered by nature, to thrive in a barren region, and is often found most flourishing where more favoured plants obtain but a feeble existence. Your Committee do not, indeed, entertain a doubt but that even the miserable lands which stretch for miles to the North and West of the goodly city of Albany, were the production of silk properly encouraged, might, in a few years, instead of yielding a gloomy and stinted growth of pines, become of immense value for the growth of the mulberry; and that now tenantless plain would be sprinkled with cottages, and inhabited by an industrious population, engaged in the production of that valuable article. Its growth and manufacture would employ those chiefly at an age little fitted for the more laborious pursuits of the farm, and would fill up a void in the productive labors of the family by giving employment to the aged, the infirm, and the child, from whose labors little profit is now realized."

In the Silk Manual, edited by Edward P. Roberts, of Baltimore, is the following table.

*A Table showing the probable produce per acre, according to the estimates and data furnished by sixteen different persons enumerated therein.*

| No. as per list above. | Names of the Parties. | Estimated No. of pounds of Silk. | Value of Silk per pound. | Amounts. |
|---|---|---|---|---|
| 1 | Mr. Bailiff Hout, | 137 | $4 | $548 |
| 2 | Mr. D'Homergue, | 242 | 4 | 968 |
| 3 | The Editor, | 180 | 4 | 720 |
| 4 | Mr. Fitch, | 155 | 4 | 620 |
| 5 | Mr. Tufts, | 155 | 4 | 620 |
| 6 | Mr. Storrs, | 146 | 4 | 584 |
| 7 | Mr. Smith, as explained, | 180 | 4 | 720 |
| 8 | Mr. Falley, | 18 | 4 | 72 |
| 9 | Columbian Magazine, | 61 | 4 | 244 |
| 10 | Count Dandolo, aver., | 198 | 4 | 792 |
| 11 | Miss Rhodes, | 27 | 4 | 108 |
| 12 | M. Lambruschina, | 1296 | 4 | 5184 |
| 13 | Mr. Genet, | 666 | 4 | 2664 |
| 14 | Mr. Bradley, | 333 | 4 | 1332 |
| 15 | Four Massachusetts' Ladies, | 105 | 4 | 420 |
| 16 | Mr. Parmentier, | | | 490 |
| | Totals, | 3989 | | 16,086 |
| | Total of all the estimates, | | | $16,084 |
| | Average product per acre, | | | $1005 |

Some of these estimates, Mr. Roberts remarks, are quite too high; but it seems to be his opinion, as well as that of every one who has examined the subject, that one thousand dollars may be safely put down as the average profits of an acre, devoted to the raising of silk. When Mr. Roberts' pamphlet was published, silk was selling at $4. Now it readily brings from $10 to $12—and there is little doubt but that these prices will continue to be sustained.

To the people of our State, in particular, the silk culture holds out vast inducements. As well in a moral as in a political point of view, the advantages will be great. In many portions of South-Carolina there are numbers of females who are absolutely unproductive laborers, from the want of some such profitable employment. Our climate is such that they cannot go into the fields and cultivate them without the risk of loosing their lives; and even where such a risk is not encountered, the profits of their labor are so very inconsiderable, that they are almost wholly

discouraged from making any exertion to better their condition. In years gone by, the houses of most of our farmers presented scenes of industry and life. The females were seen at the spinning wheel and loom, busily employed in manufacturing the staple, which the labors of their fathers or husbands had cultivated in the field. Thus employed, they were generally healthy, prosperous and happy. To learn how much this scene is changed, it is only for one to travel throughout our State, and to converse with our farmers. Their daughters grow up in idleness, or die a lingering death of diseases contracted from exposure at work under our intense heat. Their sons are the offspring of unhealthy parents, and pass through life bodily unfit for all kinds of labor. Such a condition is not one to improve our population—to render it independent, and moral and enlightened; and, in our opinion, the introduction of no employment into our country will act more certainly and efficaciously to counteract these evils than the silk culture. It is an employment peculiarly suited to females and children. Unlike the cultivation of other staples, it requires no fatiguing or laborious attention. From the time the delicate bud of the mulberry is placed in the earth, and germinates its silken leaves; to when the worm opens its gossamer thread, and expands its beautiful butterfly wings, it may be said, without being at all too fanciful, a fairy like attention.

We have, ourselves, seen a good sized cocoonery attended by a mother and her children, who otherwise would have been wholly unemployed. We may be over enthusiastic—the silk fever may have worked into our brain, and made us hope too much; but we do venture to predict that the silk culture in the next twenty years will come to be considered the greatest blessing that could have been presented to our people. We are not so visionary as to say that more of our lands will be then cultivated than are now occupied with cotton and rice—but we do say that much of our soil, now deemed useless, will be planted in the mulberry, and large numbers of our people, who neither possess the means nor abilities to tend the soil, will be found, by this employment, reaping rich and abundant harvests for themselves and their State.

To this subject we invite the earnest attention of our fellow-citizens. We have very hurriedly thrown our remarks together; but we have done so, that we may, if possible, arrest attention in time. The season for commencing the planting of the mulberry is at hand—and by devoting a small piece of land to the culture of only a few trees, the great demand for the next year may be readily supplied. We have, ourselves, planted out some thousand trees and cuttings. We have been, and still are, making ourselves acquainted with the culture, and shall be happy, at any time, to give, by ourselves or others, all such information as any of our inquiring friends might wish to possess. At another time, we hope to return to this important subject.

---

### *A short account of a Machine for Raising Water from deep wells.*

*Mr. Editor*,—For the benefit of such of your readers, whose situations are such as to require deep wells to obtain water, I have transcribed the following easy method of drawing water from such wells, which I met with in looking over the Annual Register for the year 1783, should you think it worthy a place in the Southern Agriculturist.

This machine is said to be the invention of a seafaring man, who took the hint from observing the great quantity of water which every rope brought on board with it, that had been drawn through the water—a circumstance that could escape no person's observation who has been much on board ship; but which, like many other things, that pass daily before our eyes, had never been applied to any useful purpose. The application is as simple as the principle.

A good wheel, about three feet diameter, is fixed on an axis, which turns horizontally over the well, and an endless rope, of a sufficient length, to reach into the

water in the well, passes over it in the groove. On the same axis a wrinch is fixed at one end to turn it by; and, at the other end, another wheel, loaded with lead, which acts as a fly, to increase the velocity. On turning the wheel, each part of the rope, as it goes to the bottom, passes through the water; and on account of the above-mentioned property, the water adheres to, and is brought up by it to the top, where it is discharged from the rope into a cistern, placed to receive it, by the pressure of the rope upon the wheel, in passing over it—and so great is the simplicity and effect of this machine, that we have been told by a very excellent mechanic who has seen it, that notwithstanding the well is near two hundred feet deep, he turned the machine with one hand, so as to raise water sufficient to fill a pipe, the diameter of the aperture of which, appeared to him equal to the diameter of the rope that raised it. This, at least, is certain; the well had long been disused before this machine was erected over it, on account of the difficulty they found in raising the water out of it.

Respectfully your's, WM. LOGAN.

---

*An easy, quick, and economical way to Cure Bacon.*

Take a hogshead of the size that may be necessary, say one hundred and twenty or thirty gallons. Take out both heads and nail a sufficient number of slats inside to hang as many pieces of bacon as is intended to be smoked. Dig a hole in the ground, at any convenient place, two feet deep, and about eighteen inches wide, in which put saw dust or corn cobs, kindle a fire and make a smoke; put the hogshead directly over it, hang or tie up the meat on the slats, as many as may be necessary; cover the top that the smoke may be kept in, and attend, as may be necessary. By the above method, one dozen or more hogs may be cured in one day.

HELENA.

# PART II.

## SELECTIONS.

---

### *Directions for the Management of Silk-Worms through their Hatching and Feeding time, according to the most approved European practice.*

[Translated from the French, for the Farmers' Register.]

#### CHAPTER I.

*Of the hatching of the silk-worms' eggs.*

Among the preliminaries to be observed in the disposition necessary to make for the hatching the eggs, after having detached them from the cloth or papers upon which they have been preserved since they were laid, the most important is to submit them to a temperature a little raised: as much for obtaining them vigorous, and to preserve them capable of fulfilling the end proposed, as to make them hatch all together. It has not been very long since, for this purpose, recourse was had to the heat of dunghills, of beds, of kitchens and other places; now they construct hot-houses, or warm green houses, precisely like those which gardeners use for obtaining flowers in winter. From the moment at which the eggs are exposed to this heat, they undergo, all together, the same conditions; and, whatever may be their number, they almost all reach the end desired in the same time. It is necessary, however, to bring to bear unremitting care and attention, and great watchfulness; for without these, the whole brood would be injured or destroyed. Supposing then, that the operator is provided with thermometors, hatching stoves, &c., as will be hereafter described, we will now proceed to speak of the hatching of the worms.

1. To prepare the eggs to hatch, it is of great importance that they should have been well fecundated, and, above all, well preserved, in the climates of France, to the latter part of April, or first days of May. The cloths, to which the eggs are attached, are plunged into common water, and suffered to remain six minutes, that the mucilaginous matter, by which the eggs adhere, may be dissolved. The water is then suffered to be drained from the cloths, for ten minutes, and the eggs are then carefully scraped off with a suitable instrument, [such as an Ivory paper folder. or a spatula,] which may be done with much facility. The eggs are collected for the purpose of

pouring them off successively, and until none are left upon the cloths. We may, in any kind of vessel, do it in half an hour. Before separating the eggs, there is poured over them a little water, which serves to wash them. All which swim on the water are thrown away. For this operation five minutes are sufficient. It has been noticed that eggs which had been laid in a cold and moist temperature, and are yellow, (the mark of not being fecundated,) yet are heavy enough to sink in the water to the bottom of the vessel. All are next poured upon a sieve, or rather upon a thin muslin cloth, to separate the eggs from the water. The eggs are then put into weak wine, either red or white. Some persons afterwards wash them again in another water, and that causes no marked difference; but prudence requires that the eggs should not be left too long in the wine, because it hardens them very much, which retards their hatching. They should be withdrawn from the wine after ten minutes. The temptation of gain alone has induced the dealers in eggs to dip them in high-colored wine, by which the eggs all acquire the color natural to those well fecundated, even when they are worth nothing. This fraud it is necessary for buyers to be guarded against. Whilst in the wine, the eggs should be separated from each other, by being softly rubbed, then stirred, shaken, and poured out with a certain degree of quickness, by which the heaviest, which are all excellent, are easily separated from the light and unfruitful. The wine is separated and the eggs spread upon new dry cloths, until they are completely dried, which requires forty-eight hours. They are then kept in earthen or porcelain plates, in beds of six to eight lines* of thickness, until it is desired to make them hatch. They must be protected from light and from humidity; and, provided that the temperature is kept at between 46 to 59 degrees [of Fahrenheit's thermometer,] it is sufficient.† All these attentions do not require more than an hour and a half.

2. In order to be able to establish the temperature which suits best for hatching of the silk-worms, and in order to regulate it and keep it always equal, it is necessary for the conductor of the business to have at his disposition, and under his eyes, a well constructed and well graduated thermometer. For that purpose those of mercury are best; but as these, if large, are very dear, M. Lagarde, optician at Paris, (Quai de Gevres, No 10.) makes them of spirit of wine, with which it is impossible to commit errors. He has constructed them upon the plan of a physician of Milan, and by instructions of M. Dandolo himself. For "the distance marked from the freezing to the boiling point upon ordinary thermometers is too small, the degrees are too near together, which sometimes causes mistakes to be made. To avoid this inconvenience, I have made, for the hatching-

*The weights and measures stated in this translation are French, and both exceed the American in about the same proportion. Six French feet are equal to six feet and four inches American measure. The French foot, like the American or English, is divided into 12 inches, and the inch into 12 lines. Seven pounds French, are seven pounds and twelve ounces American weight.—Translator.

†In the original, the degrees of temperature are marked by Réaumer's scale, which are changed to their equivalents in Fahrenheit's throughout this translation.—Tr.

room thermometers with long scales, the distance from the mark of one degree to another being equal to that of ten degrees of common thermometers. In this manner, I have been able to divide each degree into five fractions, which are easily distinguished, even at some distance. Thus, the least changes of the temperature of the apartment may be perceived. These thermometers have a sign which indicates the point at which the column of colored spirit of wine ought to stop." It will be most proper then, for the purpose of operating in a manner as certain as it is possible to do, to procure thermometers of this kind.*

3. The hot-house hatching room is made of a small apartment, 12 feet square, of which the walls [of brick] are quite dry, and in the midst of which, on one side, must be placed a furnace made of baked earth, or rather of very light bricks. The furnace, or stove, should be capable of being heated with but little fuel, and gradually, in order that it may prolong and preserve its heat as much as possible, or that it may be augmented or diminished, as required, without letting any smoke get into the room. Thermometers should be placed at proper distances, to mark and show that the heat is every where the same; for, if it is certain that all the eggs of caterpillars do not come to the hatching point until surrounded by an atmosphere hot enough to cause the germ of life to be developed, and as silk-worms in our climates cannot certainly obtain the degree of heat which they would meet with in those regions whence they were brought originally, it is then absolutely necessary to supply that temperature, in order to make them hatch together, and that they may be developed in the same manner. There should be arranged, in advance, trays of wicker work, or hurdles, or moveable frames, or shelves of fir, fixed near the walls by means of cross-pieces, which are implanted in the walls in such manner as not to leave between each two but 22 inches of interval, to place upon them the necessary boxes, constructed of paste-board, or of very thin white wood. The boxes of paste-board should be 8 inches square, with sides half an inch high, for an ounce of eggs to each. When it is desired to place more eggs than this quantity, wooden boxes are provided, of greater or less length and breadth, and with edges more or less elevated, upon which their respective numbers are to be marked. They are placed near each other, leaving between each two an interval of two inches width; and placed always at a convenient height to be examined at the ease of the manager, and for him to be able to move the eggs, from time to time, with a wooden spatula, or shallow spoon, which serves well to stir the eggs without risk of crushing them.

By means of very sensible thermometers, it will be very easily perceived which are the places in the hatching-room where the heat is lowest; and thus it will be known where to put the eggs of which it is desired to advance or retard the hatching, according as the season may have been favorable or unfavorable to the putting forth of the

* The degrees marked on Reaumur's thermometer, the kind referred to in the text, are equal to 2¼ degrees of Fahrenheit's, which is used in England and the United States. Therefore, the objection made to the small divisions of the degree, does not so much apply here as in France.—Tr.

leaves. By also adding some light tables, upon which may be deposited the boxes in which the worms are hatched, they can easily be changed from place to place on the shelves, at will, and as required.

With one window of large glass, the room will be well enough lighted. The light can do no harm to worms of the first age; and if there is need to moderate the heat, there may be fitted in the sash a moveable pane of glass, which will be opened or closed according to thedegree of heat desired to be maintained, or there may be constructed an opening in the door, or, better still, an air hole or ventilator through the middle of the floor, to be opened or shut by means of a trap-door. When the hatching of the worms is finished, this hatching-room should be put to the common uses of a laboratory, or feeding-room; and in it may be placed worms to be fed and reared, unless subsequent hatchings are desired to be made.

4. To properly order the time of hatching the worms, there will be need to observe the progress of atmospheric temperature, compared to the putting forth of the leaves, and ten days before the worms are desired to be out of the egg, they should be put into the boxes. The time should be noted, and written down, when each parcel of eggs entered the hatching room, with the number of the box which contained each parcel. By giving spaces between the boxes, it will be impossible for one parcel to be mixed with another. The wicker hurdles, or other moveable frames, will be covered with paper in the hatching-room, which should be heated from the first moment to 64 degrees of heat, and so kept for two consecutive days. The third day, the heat must be raised to 66 degrees; the fourth to 68; the fifth to 71; the sixth to 73; the seventh to 75; the eighth to 77; the ninth to 80; tenth, eleventh, and twelvth, to 82 degrees.

By the signs which we are going to indicate, it will be very easy to know the precise time when the hatching of the worms is to be expected. For the eggs, which were of an ash-colored gray, become more or less black; they then pass to violet, then to a yellowish gray, and finally to a dull white; although those eggs which may have been washed in very high-colored wine, will retain the reddish tint to the time when the worms come out.

Often, before placing the eggs in the heated room, to make them hatch, they are made to undergo what is called *maceration*; which is done by enclosing them in little bags, which are placed under cushions, between mattresses, or in woollen coverlets. From time to time they are moved, stirred, and this operation is used only to hasten the hatching of the worms. This method is so much the more uncertain, as it is as impossible to know exactly what degree of heat the eggs may have undergone in advance, as to guess what degree will be necessary to effect the hatching properly. It is not necessary thus to grope our way to an object, in the dark, when it is possible to arrive at it with confidence and certainty.*

* All these preparatory steps are unnecessary to the young beginner, who does not intend, or is not prepared, to pursue the strict rules of proceedure afterwards, through the feeding time. For such persons, almost all the good eggs will hatch just as well, as they stick to the old papers where they were laid. But it should be observed, that all the preparations described above

In every egg exposed to a state of heat continued for some time, the embryo which it incloses acquires its degree of perfection, and the worm is finally hatched. Indeed, when the eggs have been preserved from one season to another in a mild temperature, there is no need of so great a heat in the hatching-room. They may even hatch spontaneously and unexpectedly, and before the vegetation of the mulberry has yet put forth, if kept in a temperature of 55 or 59 degrees. It is then important and essential to apply the strictest attention; for it is an absolute and totally unnecessary loss when the young worms perish because their food is not ready to be used. To have them to hatch a little too soon is a great injury; but a few days too late is not so. But when the hatching has once commenced, it would be hurtful to the worms to have it retarded, and their developement would greatly suffer.*

It is only at the moment when the egg acquires the dull white color, that the worm is entirely formed, and ready to hatch; it may then be easily distinguished through a magnifying glass. At that stage, there should be placed upon the eggs, covering pieces of white paper, pierced, before-hand, with numerous little holes, made by an awl or needle of suitable size. Or very open muslin may be used instead. To collect the young worms, there must be laid upon the papers some very small shoots of mulberry, with the young leaves at their extremities. These are to be supplied as needed; and on them the worms will collect, (and may be easily removed,) after they climb up through the holes in the paper. These branches also serve to prevent any of the worms from wandering out of their proper boxes.

The worms which climb upon the paper the first day, are often so few in number, that it will be cheaper to get rid of them immediately, and to take care only of the multitude that will come out in the two succeeding days. The first few, if preserved, as they would keep in advance of the great number, would trouble the order to be established for the developement and raising of the others.

For collecting the worms as they are hatched, the small branches of mulberry are to be preferred to single leaves; because the latter might, by their weight, keep down the little worms, and prevent their

are not for the purpose of making good eggs hatch more surely, but for the purpose of removing the worthless eggs, and the gummy, and every other foreign matter, so as to be able to know exactly the quantity of eggs that will hatch. It is essential to the correctness of all the future operations, to know precisely the weight of eggs.—Tr.

* Dandolo says that the eggs which have been subjected to the process of maceration, or otherwise kept through winter in a mild temperature, will hatch earlier (sometimes 4 or 5 days earlier,) than the eggs kept in a much colder state, though both parcels are subjected to the same heat and treatment in the stove-room, during the hatching process. Hence the importance of previously, as well as during that process, keeping the eggs always at certain and known degrees of temperature. And as the extension of the time required for hatching, or otherwise the increased heat, is not so objectionable as any uncertainty in calculation, or difference in the times of the worms leaving the eggs, it would seem that it would be best to keep the eggs in the temperature of a deep dry cellar. or an ice house. Then the time of hatching under a certain temperature, and other like circumstances, would be precisely and always the same, and would be well known in advance.—Tr.

climbing above; and the greater part might perish from being unable to surmount this obstacle. All the worms which are made to hatch in the manner described above, by means of the stove, possess a force and vigor which is marked by their deep chestnut color. Healthy worms are never reddish, and still less black. When newly hatched, and seen as placed upon the sheet of perforated paper, they appear to form a downy bed, spread out over the whole, in which are distinguished an infinite number of animalcules, with heads raised, which are surmounted with black and shining muzzles. The whole extent of their bodies is then stuck full of very small hairs, with some of a little greater size. Their cuticle, already white, is developed according as they advance in age, and the hairiness disappears gradually. In looking at the worms through a magnifying glass, their white skin is perceived very distinctly at the insertion of the head. Their tails are also seen to be set with a great number of hairs, remarkable for their length.

When the worms are about coming out of the eggs (by aid of artificial heat,) in the hatching-room, there must be placed at suitable distances basins of water, to moisten the inclosed air. This is to prevent a too great degree of dryness injuring their developement. The hatching is also favoured by moving the eggs, from time to time, with a wooden spatula; and this movement becomes so much the more useful, and even necessary, as the moment of hatching is approached.

Nothing is lost by these operations; and, by omitting them, the inconveniences caused by the failure, might greatly and injuriously influence the worms during the whole remainder of their short existence. It is even highly to be desired, in the departments of France, where the raising of silk-worms is a general object of industry, that the government, as a means of augmenting and aiding the business, should establish in every small district, a public hot-house, for hatching in common the eggs belonging to all the neighboring culturists. There is no doubt, but that in thus charging with the business an intelligent man, well instructed in the art of hatching the eggs, it would contribute much to diminish the losses met with in every year's stock of eggs; which losses occur for want of care, or in consequence of the procedure under a blind routine of practice, established by custom, and adhered to, through ignorance or prejudice.

## CHAPTER II.

### *Of the small Laboratory.*

1. If the too great heat, accompanied by dryness of the air which sorrounds them, is injurious to the worms, when about to hatch, it is not the less necessary to use the utmost care that they may not be exposed to the least cold, even though it should be for but forty-eight hours. The place in which they are to pass their lives will be proportioned in size to the nnmber of worms which are to be collected there; and it should be calculated in advance what space they will require to occupy, in proportion as they grow larger, and also what space will be required, so as not too much to affect the purity of the air. It is known by experience, that the newly hatched worms of as many eggs as would have weighed an ounce, will occupy a

space of seven or eight square feet to the time of the first moulting; that it must be extended to fifteen or sixteen feet to the second, and then to thirty-five feet to the third moulting. The number of shelves, or of frames or hurdles, should be in proportion to these measures, so that the worms may neither be troubled nor heaped on each other. The shelves or hurdles should be twenty-two inches apart, in perpendicular distance, and furnished with paper with upright borders, to prevent the worms falling off. These sheets of paper, as well as of the boxes, should be numbered, in order that no error shall be committed by changing their places, and to be able to attend to the worms in the proper order of their age, until their complete developement.

In the first or small laboratory should be placed two thermometers. It is to be so arranged as to be suitably heated, either by a stove, or by two small chimneys at the corners. The windows and doors will be placed so as to give enough light, and permit sufficient ventilation. The temperature is to be kept constantly at 75 degrees, always from five to seven less than in the hatching room; and progressively according as the worm advances in age and becomes strong. But when the season is cold, and the leaves backward, this heat is lowered to 71 degrees, and even to 68, which is the lowest admissable temperature.

The prudent culturist, says M. Dandolo, has done all that depends upon his care, when he has put the eggs into the stove-room at the time that he saw the sprouts of the mulberry trees well developed, and the weather fair and warm. If, afterwards, the weather suddenly changes to cold, as took place in 1814, it is a highly important power to be able, without danger, to retard the hatching of the worms, and to prolong for some days their two first ages. To obtain this great advantage, there is nothing else to do, if it is the first day that the worms are placed in the small laboratory, but to lower, after four or five hours, to 73 degrees the temperature which before stood at 75, and four or five hours after to 71, and the next day to 68, if that should be necessary. This cooling of the air diminishes the appetite of the worms, gradually and without danger; and by this means are hindered the modifications which, at the 75th degree, would have led sooner to the moulting. At 75 degrees, the first moulting (or casting off the first skin of the worms) would be accomplished in five days; but six or seven are necessary at the reduced temperature. The second moulting is completed in four days at 75 degrees; but requires more than six days, if the temperature is between 68 and 71. Thus it may be seen how the culturist, who is prudent and intelligent, by thus prolonging the two first ages, may gain seven or eight days of time to ward off the danger of an inclement season. There may be also gained some days in the course of the other ages, as will be seen hereafter. This gain of time for the leaves to grow, as will be readily perceived, may be a very great advantage.

The tables annexed at the end of Dandolo's work show that in 1813 the worms had climbed (to begin to spin their cocoons,) in thirty one days; and that thirty-eight were necessary in 1814, to give the time required for the mulberry leaves to ripen. I do not include in these seven days of gain the three of retarding the hatching of the eggs, which might have been used; when delay is required still earlier.

Those persons who will not take this care, and who do not employ any of the means indicated by art to prevent the ill-effects of inclement weather, would be obliged to throw away all the worms hatched too soon, or otherwise to strip the mulberry trees so completely that they would offer leaves of a bad quality for the adult age of the worms.

These considerations ought to cause to be generally felt the necessity for retarding, rather than hastening, the putting the eggs to hatch; especially as knowing that, with a good method of taking care of the worms, there is nothing to fear from some days of hot weather; which would have no other effect than to complete the last moultings some days sooner. It is besides certain, that the silk-worms which are retarded choose the leaves suitable to their age, and particularly the ripest leaves, when they are in their last age; the time decisive of the profits of the proprietor, as the worm then acquires all its value.

2. After being hatched, if it is intended to raise the silk-worms in the same place, the little branches of mulberry, scattered over the whole extent of the perforated papers, which cover the little boxes after being filled with worms, are placed in the boxes, upon the little table, (or board, suspended by a wire, or by strings,) which is to serve to transport them to the small laboratory. There, upon other and thicker sheets of paper, numbered and marked like the boxes, should be taken those boxes which bear the same numbers; and the table being placed upon the edges of the hurdles, it will be easy to lay hold of the perforated paper upon which the worms are, and, by means of the branches which support them, to make them slide off, to the papers placed upon the hurdles. To effect this more safely than with the fingers, (which always endanger the worms, a little hook, made of wire may be advantageously used.) Care should be taken to place all the little branches at suitable distances, so that they, as well as the intervals between, can be covered equally with leaves; and that the worms may be distributed equally every where. The space which they ought then to occupy, is 20 inches square. The sheets of strong paper ought to be 23 inches long and 21 broad. Of these, the worms should not occupy but 10 inches square, in the middle; and the worms hatched from one ounce of eggs, will therefore require four of such paper sheets. That will suffice until the end of the first moulting; for their extent of surface being four-times that of the little box, there will be no need of moving the worms at all, during that time. The worms should then be fed with a few young and very tender leaves, cut up equally into small pieces, spread equally upon and between the branches, in order that the worms may cover them regularly. And if, by chance, the worms should gather together too thickly in some places, some whole leaves should be put on these places, and after enough of the worms have crept upon them, these leaves should be put in spots the least supplied before. These should be fed as the first; but nothing should be given to them before the sheets of paper are completely furnished, in order that they may altogether receive their second meal.

As the whole number of worms designed to be raised together, will scarcely hatch in less time than forty eight hours, all the earliest hatching will have gained some increase of size before the last appear,

which difference of time is caused by the difference of heat in different parts of the room. But this difference of size will disappear soon, upon giving the most food to the latest hatched worms. They will soon be as large as the older ones.

After all that has been said, it may easily be imagined that there will often be more than three days required to hatch all the silk-worms desired to be obtained from a certain quantity of eggs. For, if the moths, according to the temperature in which they are kept, take from ten to fifteen days to appear, and, come out of a certain quantity of cocoons, it is clear that their eggs will also be laid in the same space of between ten and fifteen days. But it would be difficult to explain why eggs which are all put to hatch the same day, exposed to the same degree of heat, do not permit their worms to come out at the same time. It can only be attributed to the peculiar constitution of each egg, and the care taken to confine them to the degree of temperature which suits them best.

It is not the less true that a culturist who has but one little box of eggs, and of which the worms are all to be hatched and reared in the same chamber, ought not to count upon raising the first, and still less the last hatching: not that they are not good, but to avoid the trouble caused by the difference of age. Those persons who hatch many silk worms, and trust their rearing to other persons, ought to keep together all of the same day's hatching, and never mix the first with the last. It is much better to lose the worms hatched the first day, and all the eggs not hatched on the third, than to be troubled with the care of them.

As to those which have to be carried to laboratories far from the hatching room, it is necessary to place the whole ounce upon a single sheet of paper, in a single square of 18 inches, which is divided into four. By passing the hands beneath the litter to which the worms are attached, and making the fingers penetrate to the middle, the separation is made with facility, observing to divide them as equally as possible.

If these early attentions are neglected, a large proportion of the worms will be lost, even if they do not come [to the different changes of condition] very unequally, and do not contract particular diseases which will be described hereafter.

For the greater facility of transporting to a distance all the worms which have been hatched together by artificial heat, use may be made of a close box, or case, made in the form of a small book-case, with folding doors; but of which the shelves are only two inches apart. The shelves are moveable, and slide in parallel grooves. The case has two handles, or straps, on the posterior face, to enable it to be fixed to and carried on a man's back or shoulders. If such a box or case cannot be readily procured, a common scuttle, (*hotte*) or hamper, may be substituted, taking care that the worms are not exposed to cold. To secure this object, the case should be covered with paper well secured with paste. The shallow paste-board boxes, containing the young worms, will be placed on the shelves, which will leave a space of one and a half to two inches above the worms; which will afford room to sprinkle over them tender mulberry leaves, cut up into fine slips. If the journey is to be of much length, it should not be

made but in the mildest part of the day, between 11 o'clock and 2 or 3 at latest. In the morning, and still more in the evening, the atmospheric variations would be injurious to the worms.

If the embryo worms experience any damage from the alternations of heat and cold, they will suffer much less when the temperature becomes four degrees colder, than when it becomes as much warmer. As to the light, its influence is of a kind so little marked, that it would be difficult to perceive its effect. If, in the morning, when the sun striks directly on the windows, the worms are seen to appear in greater quantity, it solely on account of the increase of heat. If all things were equal in the preliminary disposition, in relation to the brood, it is certain that they might almost all hatch at the same time. And when the worms are to be distributed among other persons, to be fed and reared, they should be given out upon sheets of paper which can contain an ounce, all hatched at the same moment. That will facilitate the proper division of the worms, as hatched on the first, second, and third days. In the stove department, no good eggs can pass the third day witout hatching.

### CHAPTER III.

### *The different ages of the silk-worm.*

The most important part in the management of silk-worms is to know well, and to maintain steadily and without variation, the degrees of heat, and the temperature, which is the most suitable and beneficial to them, during the term of their existence.

It cannot be said that the silk-worm is endangered by any degree of heat in the climate of France, however considerable it may be. Originally from Asia, it supports in its natal country a heat certainly more powerful than any which it can experience in Europe. But it is hurt by any sudden transition from a feeble to a strong deegree of heat. It may be said in general, that the too rapid changes from cold to heat, and from heat to cold, are very injurious to them. In their own country, they are not exposed to these vicissitudes; therefore they thrive there very well, and do not require the care which we are obliged to give them in our climates, where the temperature of the atmosphere is so inconstant, that without the help of art we would not be able to have it steady in the laboratories where the silk-worms are fed.

A long course of experience has proved that, in France, the 68th degree of heat [indicated by the thermometer of Fahrenheit,] is the most suitable to silk worms. There are some culturists who have pushed the heat to 73, and even to 77 degrees, and the worms have succeeded equally well. It must be kept in view that it is not the degree of heat, but the too sudden changes, from one to another, which injure silk-worms. If it happens that it is necessary to hasten the growth of the worms, on account of the advanced state of the leaves, (of which the progress could not be retarded,) it should be done by increasing the heat very gradually, so that the worms will scarcely perceive the changes. For they suffer, it may be said, as much by sudden variations of temperature, as they would by the difficulty of breathing, if plunged into nephritic air.

M. Boissier de Sauvages states that being pressed by the advanced growth of the leaves, which were well out in the first days of April,

he gave to his silk worms about 100 degrees of heat in the two first days after hatching, and about 95 during the remainder of the first, and through the second age. They took but nine days for both these ages, or from the hatching to the second moulting, inclusively. All the persons who visited the laboratory supposed that the worms could not but suffer by so great a heat, which produced profuse perspiration in a few minutes after entering the apartment. The walls and the edges of the hurdles were so hot that it could not be endured to keep the hand on them. They felt sure that all would perish. Nevertheless, all went on perfectly well, and, to the general astonishment, the crop of silk was abundant.

He afterwards allowed 93 to 95 degrees of heat for the first age, 89 or 91 for the second; and, what was singular, the duration of the first ages of this raising was nearly as short as the former, of which the worms had much more heat. The cause of this probably is, that there is a limit below which the life of the worms cannot be abridged, whatever degree of heat they may be made to bear. It is true that to these had been given, in this raising, and in the ordinary mode of treatment, a like number of repasts. But what is still more strange, is, that the worms thus hastened, took but five days for each moulting in the two first following ages, although they were then in a temperature of only 82 degrees; while worms which have not been, from the commencement, pushed forward in the same manner, require, at the same heat, seven to eight days for each of these same ages, that is to say, for the third and fourth. It seems as if it were sufficient to have put these little animals in the proper train, for them to obey the first impulse, or the first bend given to them. This early high degree of heat, as given in this case, which produces a rapid growth, gives the worms, at the same time, a vigor and activity which they carry into their following ages; and this is an advantage in the hastened rearing, (that is, pushed forward by heat,) and which, besides, prevents many maladies. This hastened management abridges the trouble and the labor, and releases the manager sooner from the inquietude and sense of insecurity which he will always feel until the cocoons are completed and gathered.

To pursue this method of using high temperature, it is necessary to pay the utmost attention to the seasons' being more or less advanced, and to the state of growth of the leaves, and that there is no danger of that growth being afterwards checked by cold. On the other hand, if the putting forth of the leaves is backward, and it is followed by heat which lasts long, as may usually be expected, and yet if but little heat is kept up in the laboratory, the worms will advance slowly, and their growth will be prolonged. Still the leaves grow and become harder, and have too much consistence for the worms in their backward state. This then is a state of things in which the growth of the worms should be hastened by continued higher temperature, in order that their progress may be brought up to that of the growth of the leaves, which is an essential point.

If a culturist should determine early to pursue this method, he should set and hatch his eggs some days later than the others. For a still greater degree of prudence, he will wait eight days, and will calculate afterwards the duration of the ages; or rather, he will do better

to so arrange his procedure as to have the latest feeding of the worms to correspond in time with the state of full growth of the leaves.*

It has been said above that the worms produced from an ounce of eggs, ought to occupy, in their first age, and to the first moulting, a space of seven or eight square feet; of fourteen or fifteen to the second moulting; of thirty to thirty-five until the third; and for the fourth and last, the space ought to be at least eighty-three or eighty-four square feet. It is also necessary, in fixing the proportion of the quantities of food, given to the worms, to the spaces allowed, not to forget, that until the first moulting the temperature must be constantly maintained at 75 degrees; in the second age it will descend to 73; in the third, the temperature should be from 73 to 71; and from 71 to 68 degrees in the fourth age. These degrees of heat being well established, there should be given to the worms then, after their hatching, their arrangement, and their distribution upon the papers, six pounds of young mulberry leaves, clean and chopped, or sliced very small. In the second age, the quantity should be increased to eighteen pounds, but cut up less finely; in the third, sixty pounds of leaves will be required, still less cut; and, lastly, in the fourth, the quantity of leaves must be increased to 180 pounds, the leaves only cut about to half the size.

However, there may arise some unforeseen circumstances, of which it would be difficult to calculate the effect in advance. But with care, and, above all, with foresight, we may be able to effect the hatching precisely when the trees offer tender leaves, and which will acquire more or less firmness in proportion to the advancement of growth of the worms. If the contrary case should occur, it would compel the loss of the stock of worms, (unless another brood could be procured,) whenever a bad season should greatly retard the shooting of the leaves. If after hatching in good and apparently settled weather, it becomes inclement unexpectedly, it is easy to retard the rate of growth of the worms, at least during some time, and thus to suit their after progress to that of the before suspended growth of the leaves. In the case when the leaves shall not have the requisite qualities, they should further be diminished or increased for the repasts, according to circumstances. For, all the quantities which have been determined by approximation, although confirmed by reiterated experiments, depend almost entirely upon the degree of heat in which the worms are kept and fed. In fine, the economy or procedure prescribed in such cases, does not pre-

* This new mode of rearing worms under an unusual and very high temperature, if sufficiently tested by experience, would be a far more valuable improvement in practice in Virginia, and the more Southern States, than in France. For, one of the greatest dangers that threatens silk-worms here, is the circumstance of the heat of the weather occasionally rising so much higher than the proper temperature for the interior of the laboratory, that the latter could not be kept down by shading and ventilation. This evil would sometimes happen to the earliest broods; and would certainly attend second or third broods, reared in midsummer, if the usual degrees of temperature directed above, were attempted to be preserved, or if no artificial mode of heating were put in use. This new mode of using great heat would be an admirable and suffieient safeguard against this otherwise certain and great evil; as the heat used would rarely be exceeded by the natural heat of our hottest days.—TRANSLATOR.

vent them from devouring their food with great appetite, digesting it easily, and being preserved constantly in a state of vigor and excellent condition.

To economize the food and to obtain a crop of cocoons as abundant as possible to have, such are the principal objects which every silk-culturist should have in view. It is known, by experience, that by over-loading the worms with food, there is not only lost the value of the food wasted, bnt also, by the accumulation of litter, the little vigor which the worms enjoy during some moments of their existence undergoes changes in the time of moulting, which make them pass from having good appetite, to a state of visible languor; and if care and attention are not redoubled, the worms become weak, languishing, sick, and do not wait long to perish. But if, to the contrary, nothing is neglected of the attentions which should be observed, and if the course advised for the best developement of the worms is followed exactly, there will be saved a quantity of cocoons proportioned to the quantity of eggs set, and of the mulberry leaves consumed. For M. Dandolo assures us, 1st, that when 110 or 120 pounds of cocoons are obtained from one ounce of eggs, there will have been consumed very nearly 1650 pounds of leaves; 2d, that when from an ounce of eggs, there is obtained but 55 or 60 pounds of cocoons, there will have been used about 1050 pounds of leaves; in which supposition, there would be required about 2100 pounds of leaves to obtain, from two ounces of eggs, the first named quantity of 110 or 120 pounds of cocoons; 3d, that the 110 or 120 pounds of cocoons obtained from a single ounce of eggs, are worth much more than the same products from two ounces of eggs.

If, as M. Dandolo affirms, from an ounce of eggs, hatched and well taken care of, we may obtain about 165 pounds of cocoons, any deduction from that amount must be considered as so much actual loss; even though the consumption of leaves may have been much more considerable. And if there is added to this loss the injurious influence, which the worms which die in the course of their developement, have upon the survivors, the amount will be greatly increased. The dead bodies increase the indisposition and feebleness of the living; and the more the number is diminished, by want of care, the less silk, of good quality, will be furnished by the remaining worms, in proportion to the number. It is much to be desired, to remove all doubts on this subject, that there should be established a parallel between the quality and quantity of cocoons produced by a good manner of treating the worms, and the bad, which results almost always from the common routine of practice, and from prejudices, as much as from negligence. A series of tables, which even though but approximations to truth, in a succession of many years, with the meteorological indications of the atmosphere, during the season, would be the best means to employ for the purpose of knowing well the losses caused by the state of ignorance, out of which the managers of silk-worms are not willing to be drawn, whatever efforts may have been made for their instruction and benefit.

### *The first age.*

*The first day.* Scarcely are the worms hatched and distributed on the squares of paper, as described above, when it is necessary to give

them food four times, in quick succession. [3¾ pounds in the twenty-four hours.] For that purpose the young leaves are cut into slender threads, either with a sharp knife, or in a suitable cutting box, (constructed upon the principle of a straw-cutter,) and distributed with moderation for the first repast, to be augmented for the second, third, and fourth, at the distance of six hours from each other. There is not necessary to the worm but an hour and a half, or two hours at most, for it to be filled and to fall then into a sort of torpid state, during which there is need to watch and keep the temperature constantly equal, and to avoid all changes of hot and cold. For five ounces of eggs, it is proper to place the sheets of worms upon a space of the shelves of 36 square feet, eight inches, and to distribute over them very nearly four pounds of young leaves, tender and cut small; while, for one ounce of hatched eggs, it will not be necessary to exceed a pound and a half. A space of twenty inches square suffices also to contain them, so that the leaves will be found eaten through. As the worms as yet reject no excrement, it would be useless to change their place. Then they are so frail and delicate that they should not be touched with the hands. If any of them get too much scattered, they should be carefully lifted with a slender twig, or a large needle, to be put back to their place. For gathering up the leaves scattered too far from the worms, a little broom will be found useful. At this stage of its life, the silk-worm will eat its own weight in leaves in twenty-four hours; therefore, all, for one repast, should not be distributed at once. On the contrary, some should be reserved to give in the intervals, and principally on all the places where leaves appear to be deficient, because strewn there too thinly at first.

*The second day*, there should be used, in the twenty-four hours, from six to seven pounds of fresh leaves, cut very small; taking care to give a smaller share of the day's allowance at the first time, and all that remains at the last. The squares are enlarged by degrees. Already the aspect of the worm is not the same as on the day before. Its head is larger and whiter; the color of its body diminishes; its villosities are much less apparent.

*On the third day*, as the worms now eat very greedily, and as they occupy almost two-thirds of the sheets of paper, there should be given to them three pounds of cut leaves at each of their four repasts. In order to satisfy them the better, the first time there should be given but half of the allowance; and if it is eaten in an hour, the time for the second regular repast should be hastened, as well as to give the reserved help of the first repast, in the interval between the two. Without their being entirely covered over, their particular disposition and the quantity of leaves cut to distribute, might alone serve as guides in the matter. Their heads, towards the close of this day, are much whiter; they have taken much more developement; the villosities have almost disappeared; their skins have become reddish-brown; their bodies, and especially their heads, have become shining, with a semi-transparent appearance.

*On the fourth day*, as the appetite of the worms diminishes, so ought their food to be lessened. There should not then be used but seven pounds of cut leaves. The first distribution will be 2¼ pounds, and the others will be diminished in proportion to the quantity of leaves of the preceding repast which may remain untouched. The attendant

will also take care of the sub-divisions of the intermediate distributions. The sheets of paper are now covered with worms completely. By enlarging the space covered with leaves, at each repast, they are prevented from being heaped upon each other, which might be injurious to them. As from the first part of this day the worms agitate their heads, it is a proof that their outer skin now troubles and overloads them. A great number of them eat but little, and their heads have grown much, and are more shining. By the evening, the worms are almost all still, or torpid, and eat almost nothing. Their bodies are almost transparent; they approach to moulting, and if observed near, and against the light, they appear of a dull white, livid and yellowish.

*On the fifth day*, during the whole of it, 1½, or at most two pounds of fresh-cut leaves are sufficient. They should be scattered as equally as possible in the course of the day, and only in the places where worms are perceived in a condition to eat. The quantity of leaves indicated, should, of course, be increased or diminished, if, from any circumstances, the worms should need more, or less. There cannot be too much attention paid to the exactness of the distributions, and the economy of the leaves. Towards evening, the worms are almost all torpid or still; some of them are beginning to revive.

The first moulting, (or casting off the first or outer skin,) is now terminated. The worm takes an ash-color. Its vermicular, or crawling motion is very decided; all its rings go and come upon themselves in a manner much more easy and free. The leaves which are to sustain them ought to be gathered at least eight hours before being given to the worms. Leaves may be preserved even for a day or two, in a cool and dry place, sheltered from heat and light.

Thus the first age of the worms is usually complete on the fifth day, without counting in the two days occupied in their hatching, and in collecting and distributing them from the moment of leaving the eggs. To this time they have consumed a little more than thirty pounds of leaves. They have increased to fourteen times their first weight in the space of six days; and increased in length to four or five lines, since coming out of the egg, when they are scarcely one line in length.*

It is especially recommended to renew, from time to time, the atmospheric air which serves for the worms to breathe in the small laboratory, either by opening the door, or the window, if the season is mild. In the contrary case, of cold weather, the worms are warmed by the furnace, or the fire-places, if there are any, to maintain equal and constant the degree of heat which is necessary to keep them healthy, vigorous, and in good condition. It is even, in some manner, upon this first period of their existence, that depend all the other circumstances whsch ere to bring on the successful termination in view.†

*(To be continued.)*

* A line is one-twelfth of an inch —Tr.

† Throughout each of the ages, the like general increase, first, and then the decrease of appetite, occur, and the same general rules for distributing the food should be observed. That is, during the first part of the age, the meals of each day should successively be increased in quantity, as well as the successive days' allowances, until the maximum of appetite and of food is reached; and then a decrease of each day's several meals, in succession, until the worms again suspend their eating.—Tr.

## *Mexico-Egyptian Cotton.*

[FROM THE SOUTHERN TELEGRAPH.]

A few days since we accidentally saw a very small quantity of the Mexico-Egyptian cotton, produced the present season on the plantation of the late Dr. Nutt, near this place. We were much pleased with the evident superiority of the article, and solicited* an account of the experiments by which this superiority was obtained. We are happy that our solicitations have elicited the very interesting letter which follows, and to which we invite the attention of our readers—especially that portion of them who are engaged in the production of our great staple.

*Messrs. Editors*,—You requested me to give you the result of an experiment instituted by the late Dr. Nutt, with the view of improving the growth of our cotton, by crossing it with that of Egypt. I cannot, as yet, give you the result, as the experiment cannot be fully carried out, until we have gathered the *small crop* of Egyptian cotton planted last spring; after which I may be able to show you what amount *per* aere it will produce, and to note, particularly, the relative advantages to be expected from the Mexican and Egyptian cotton. So far the experiment can only prove interesting to the curious. When we are more fully convinced of its usefulness, I will then inform you of the further progress of the investigation.

I learned from Dr. Nutt, that the cotton of the *Nile* seldom grows higher than *three feet*, that the bowls are small, and have only *three compartments*, containing as many *locks* of cotton. The Mexican cotton, as it grows with us, differs in each of these particulars. The stalk grows much higher; the bowls are larger, and usually have *five compartments*.

That these two *varieties* of cotton do cross when approximated, admits of no doubt when we have examined the *new product*, which is an amalgamation of quallties peculiar to the Egyptian and Mexican, yet differing from both.

The seed Dr. Nutt brought from Egypt, was planted in a line contiguous to the Mexican cotton; the seed procured from these stalks were planted the following year, from which was obtained seed enough for something like an acre of ground—the subject of our present remarks.

This cotton was planted on the 14th of April, three weeks after the usual time. The consequence of this is, that it is still growing, and but very few bowls as yet have opened: and although the cotton on this place, as well as in the neighborhood, has suffered serious injury by the shedding of *forms* and *bowls*, yet this looks healthy, and is weighed down by its rich burden.

The *Mexico-Egyptian cotton* as it now appears, has two or more stalks, measuring in circumference from eight to ten inches. These stalks have innumerable branches, which are larger than the stalks of common cotton growing, in like situations. The stalks of each plant attain a common height, say from six to twelve feet. The branches grow erect, and these have arms that extend three or four feet hori-

* Dr. New.

zontally; at every joint there is a blossom, square or bowl. Mr. H. Nutt had the curiosity to count them last summer. He found upon a single plant, *five hundred*. There is a plant now near the house, which, if any one had the patience to count, may be found as many *well-formed bowls*. The peculiarity of its blossom is worthy of notice, which is a beautiful bright buff color. The bowls have but *four compartments*, a feature given it by a compromise between its progenitors. The fibre of this cotton, (a sample of which I send you,) it will be readily seen, is *longer*, possessing *greater strength*—the color, *Mariet*, less bleached, approaching somewhat the much desired "cream-color," and that its texture is finer than the Mexican. This sample, you will mark too, was picked from a few bowls, the first to open, and that the seed were torn out by the fingers. You can conceive how much more beautiful it will appear when its second picking is ginned.

It is a fact, well attested by naturalists, that subjects of the *vegetable* as well as the *animal kingdom*, when made to procreate from their respective species or families, degenerate. In a few years, the Mexican cotton of the Gulf Hills, which has so long occupied such enviable pre-eminence, may lose that proud title, and become as inferior as the *black seed* that preceded the introduction of the Mexican. Another fact may suggest to the planter the necessity of making some attempt to improve the culture of cotton in the *Hills*. You know, gentlemen, that land, which, for a series of years, has produced a certain grain or crop, will become *tired*, and refuse at last to *bear* that crop any longer, that by changing the crop or alternating it with another, thus *resting* it, in some degree, that its capability to produce will again be restored. Now, there is no concealing the fact, that much of the land in *the Hills* is impoverished, and some entirely exhausted, and that, unless something is done to restore its productiveness, it will fail to bring good cotton before long, and at last fail to bring any cotton at all.

It was to remedy these evils, to-wit: to prevent the degeneration of the Mexican cotton, and to arrest the exhaustion of the soil, that this attempt to cross the cotton has been made; and if the experiment of the Mexico-Egyptian cotton succeeds, we shall have the novel spectacle of worn out lands, *resting*, and, at the same time, *producing* finer cotton and larger crops than at present.

I sat down, to notice simply the peculiarities of this *mongrel cotton*; but your inquiries have elicited an extension of my remarks, which probably should have been reserved till better warranted by facts, or till my time should have given me leisure to render this communication more satisfactory. But as your curiosity *is to blame* for this hasty account of an interesting operation of nature, you must be satisfied with this statement till the future has developed the result of these speculations.

Yours, respectfully,

C. B. NEW.

*Laurel Hill, Sept.* 5, 1838.

## *Importance of Agricultural Education.*

[FROM THE FRANKLIN FARMER.]

We insert, with pleasure, the following communication from our friend, "Clodhopper," and earnestly invite the attention of our readers to it. He is not only a fluent writer and sound thinker, but also a practical and a scientific farmer; he is, therefore, well qualified to treat his subject with ability. We sincerely hope that in this case the mantle of the true prophet may have fallen upon him, and that the period is not far distant when every farmer, who does not give his sons and daughters as extensive and scientific an education as his means will allow, shall see and feel himself disgraced in public estimation.

Agriculture and the Arts are far more in need of help of Science than are the learned professions. The farmer should be a Botanist that he may understand and properly direct the diversified vegetable life which he is constantly bringing into existence. He should be a Chemist, that he may be able to analyze and examine the nature and elements of the soil he cultivates, and thereby understand the manufacture and application of manures. He should be an Entymologist, that he may know the nature and habits of the numerous insects which feed upon and destroy the fruits of his labors. He should be acquainted with elementary Law and Equity, and should have extensive general information, that he may fill, with respectability and profit, a seat in the councils of his country, to which he should and would be more frequently called.

—

FRANKLIN Co., Kentucky, Dec. 1838.

*To the Editor of the Franklin Farmer:*

DEAR SIR,—In thinking over the change now going on in the opinion generally entertained of the farming community, and of the acquirements necessary to a man who would become a first rate agriculturist, I have been led to the following reflections, which you are welcome to, if they are in your opinion worth any thing. Agricultural papers are doing wonders in the work of reformation, which, when completed, is to place the *science* of Agriculture in its true light, and upon its proper footing before the world, and I an humble but *zealous* follower of what I conceive to be the true faith, am anxious and willing to do all in my power to aid one of these periodicals, whose united efforts in this matter are in my opinion to equal in effect, or rather exert as great power over minds of men as Archimedes proposed to exercise over physical matter with his lever.

Yours, respectfully, C.

A new day is dawning on the farmer, and the time is already at hand when he is to occupy as high a place, in the estimation of the *world*, as a man of intelligence and information, as any of those who have been heretofore styled members of the *learned* professions; when I say world I mean a majority of mankind, for there have always been some men of sufficient independence and intelligence to throw off the trammels of popular prejudice, and while they were conscious of the woeful deficiency of information among farmers as a class, did

not refuse to accord to a farmer of good sense and *education* the right to as high a station as a member of any other profession.

But the day is fast passing away when it was thought that to be a *good farmer* required nothing more than industry and such education only as enabled a man to keep his accounts, and when it was thought that, with the exception of southern planters, those only became farmers who had not the means or were incapable of receiving such mental culture as would qualify them for a *profession;* or if they possessed these, were too indolent for any active pursuit, either of body or mind, and being possessed of a landed patrimony, contented themselves with living off of the earnings of negroes or hirelings. With these impressions can it be wondered at that most young men, of any pride of character, fearing to be considered as following an inferior pursuit, turned their attention to other professions, and left those only to be farmers who were less ambitious, and whose education was not sufficient to master the arcana of law or medicine? In this way *that* became, to some extent, true, which at first had no foundation except in a popular error, viz:—that farmers, *generally*, were not as enlightened as many other classes of society,—and thinking that it was the pursuit which honored or dishonored the *man*, not the man the *pursuit*, it was "prima facie," evidence with most persons that any man who was a farmer could not be a man of cultivated mind.

And what has been the result of this state of things in our country? While such rapid strides have been made in the arts and sciences generally, agriculture has lagged far in the rear, as the barren appearance of the once fertile land in many parts of the country sufficiently declare; and of late years so glaring have been the proofs of this fact that we have been led to see what a deplorable state of things must soon take place, if some remedy were not found for this rapid failure of our agricultural resources upon which the wealth of the nation must mainly depend. The cause has been readily perceived, and the remedy discovered. Agriculture has now her champions through the length and breadth of the land, and the day is not far off, when, with the light we now possess, she will take her stand in the foremost rank, and be considered no disgrace to her sister sciences. She, however, exacts of her votaries the most entire devotion, and he who would be in the first rank of farmers, will have no child's play to perform; it is not sufficient that he know how to hold the plough handles or the proper season for putting in certain crops, or the *good old way* of cultivating them; nor is he the best farmer who realizes the greatest amount of money from his farm for a *few years*, and then leaves it so exhausted that some comer-after has the work of a *lifetime* to resuscitate it. Here we may apply, with peculiar force, the old maxim, that "an ounce of prevention is worth a pound of cure."

He is the best farmer who cultivates his land in such way as to realize the greatest per cent. upon his capital, and, at the same time, improves his land in the greatest degree. We owe something to posterity as well as to ourselves, and where it is the motto of the farming community, to make the most they can at once, and let those who come after take eare of themselves, the country is, in my opinion, laboring under one of the greatest curses which can befal any nation. This feeling and the easy refuge to the rich lands of the west have

been the principal causes of the woefully impoverished state of the lands in some parts of our country.

To be a first rate agriculturist, and such should be the aim of every farmer, requires industry, perseverance, and a degree of intelligence and education at least sufficient to master any of the ordinary professions—and, in my opinion, there is no business on which the lights of science can be made to bear more advantageously. All we want to insure, a steady and onward march in agricultural improvement is *light* and eyes *willing* to receive it, for with all humility do I confess that the force of prejudice seems to be more inveterate with farmers than with almost any other class of men, and this presents the greatest obstacle to their becoming more enlightened. *They will read almost any thing else sooner than an agricultural paper*, which many of them say contains nothing but "schemes and wild theories," and that they want to have nothing to do with *book* farming; indeed they seem to think that the mere printing of a fact does away all possible practical utility that might result from it if it were made known by "word of mouth." Opposed to all innovations, the "good old way" of their fathers will do for them, and generally as their fathers went down hill, so in a few generations they are very apt to get to the bottom either of their purse or of the soil.

These prejudices can never be overcome until farmers read more upon agricultural subjects instead of devoting their evenings to swollowing large doses of political nonsense. Convince them that they are behind in this age of improvement and their pride will not permit them to remain so.

I prophecy that the day is not far distant when a *majority* of farmers will be ashamed to be without an agricultural paper, and that soon he who is seen laboring with his own hands, and wearing during the week a smock frock and clogs, will no longer be regarded by the passer by as a mere surf, but as one fitted, at least so far as industry, *information* and morality go, to rank with the most lordly planter, quibbling lawyer, or pedantic pill roller in the land. There will be more "Poor Richard's" among us in the field; and in our legislative councils there will be more *doing* and less *talking*, which will cause quite a different aspect of affairs in every department of business. If these things do not come to pass I will agree that I am deceived in the signs of the times, and that there is no prophetic spirit resting on

CLODHOPPER.

---

## *Manure,*

[FROM THE FARMER'S CABINET.]

*What is the greatest quantity of Manure to be obtained from given means?*

*Mr. Editor*,—There are in agricultural, as perhaps in every science, some leading propositions, calculated in a particular manner to arrest attention by their prominent importance. Such I hold that of a "Subscriber" in your May number—"*What will an acre of land produce?*" and also the question which heads this article.

Were it possible at once to afford a complete and palpable solution to these two propositions, what mind can calculate the vast increase of treasures that would instantly become accessible to humanity? As, then, we cannot inquire too strictly, or know too much regarding them, I propose, after recapitulating a few of the principal statements of a "Subscriber," concerning the latter question, to furnish my own experiments upon the former.

He informs us that a single acre of his land, *with abundant manuring and superior cultivation*, was made to produce the sum of $348 40 per annum, for five successive years, besides the vegetables used in a small family. He further states, in substance, as his present conviction, that the quantity of soil cultivated has nothing to do with the secret of gathering money out of it; that "this altogether depends on a judicious selection of soil, *on the facility of obtaining manure*, and on the proper application of its food for plants, &c.—that he found, by actual experiment, made upon a large scale, "that the profit of capital laid out in land produced an interest of only *five* per cent. per annum, the capital laid out in manure upon the same land produced *twenty* per cent."

Now, my own experience, as I shall presently show, abundantly confirms the probable accuracy of all these statements. Let us distinctly understand, then, that it is not the great quantity of land, but *the abundance of manure* upon a little, that is alone required to give wealth and independence; that the man who owns five or six acres, may (according to the above data,) with the aid of manure and good management, draw from $1,800 to $2,000 from them each year, while he of a hundred acres may scarcely obtain half of it upon the common plan.

But where is the requisite manure to be obtained that shall so suddenly and surely enrich the farmer? In reply to this, I will simply give my own experience, and by it endeavor to convince the reflecting farmer what amount can, and in fact *has* been made from means incomparably more limited than is generally imagined possible.

Previous to 1829, I had followed in Philadelphia a sedentary occupation, which, by excessive application in it, had so enfeebled my constitution, that I was obliged to seek in the country for that measure of health which I might no longer hope for in the city. So I bought, with my scanty savings, a small place of ten and a half acres, and moved upon it the same fall of 1829.

Not being acquainted with farming, I hired a man to plough two and half acres, and sow it in rye. The cost of seed and labor, in putting in, gathering and thrashing the said crop, was $8 56. The crop yielded five and a half bushels of very poor black rye, fit only for hay feed—say at forty cents per bushel, (as good rye was then selling at fifty and fifty-six cents per bushel), was worth $2 20, and the nett loss sustained upon farming the ground was $6 36. The season was moderately good for grain, and the two and a half acres, rather a favorable specimen of the rest of my land! I planted a potato patch the following spring, (1830,) of about the fourth of an acre, which I manured in the hills with one load of marl only, and the crop yielded but three and a half bushels!

Being a total stranger to the nature and character of soils, but having previously, from some cause, entertained the notion that land in

general produced about twenty-five bushels of wheat, or forty bushels of corn: or four or five loads of hay to the acre, the conviction I had now received of the absolute worthlessness of my land fell upon me like the shock of a thunder-clap. Discouraged by the greatness of my disappointment, but not quite confounded, I determined that manure, in future, should be every thing to me, and stand in the stead of both land and crop. Being greatly improved in health, by the change of situation and exercise, I plied my avocation with increased diligence for the maintenance of my family, and made it the amusement of my leisure hours and leisure moments to collect from every corner, and pannel of fence, every thing that I imagined could furnish a vegetable nutriment, and placed it in the cow yard, so combined with the litter as to absorb and retain every thing of the putrescent character that might be deposited there. By such means I have gone on, every year increasing the quantity of my manure, to an extent that I believe astonished most of my neighbours. The following is a sketch of the means I possessed, and the methods I took to obtain manure for the present year.

I commenced last summer by collecting into the outer part of my hog pen every thing of the weed kind I could find about the place, till I had a layer about twelve inches deep, which I covered with a layer of earth about five inches thick, continuing the process till the pen was filled to about two and a half feet deep. In the fall I littered my loose corn cobs and the principal part of the buckwheat straw into the pen, interspersed with layers of earth in the same manner. The two stalls of my stable I served also the same, taking care to save therein all the chaff and refuse straw after thrashing. In these stalls I poured weekly, through the fall and winter, (for I had no cattle in them except in bad storms) the soap-suds and such putrescent fluids that might be obtained, keeping the corners and outsides, and under the mangers carefully saturated.

As soon as my corn was gathered in the fall, I cut the stubs close to the ground, and wheeled them immediately, *while yet heavy*, into the barn-yard, where I packed them in every part of it, and also under the shed, being an area of ground about forty feet by twenty, and in a few days covered them also with a layer of earth, from a fence-row, close by, to the depth of about eight or ten inches. Upon this earth I foddered my three cattle during the winter, occasionally depositing more earth upon the litter as it collected there.

Your readers will readily judge, that the object of all this preparation was not so much for the sake of saving the materials collected there as to obtain a menstruum, or rather *sponge*, if I may so call it, calculated to absorb and retain all the urine deposited in the yard during the winter. The compost masses, however, or layers, thus collected together, are not to be considered as manure prepared for the soil, but only as *materials* that require to be thoroughly *mixed* in order to reduce them to a state fitted for a rapid and complete incorporation with the soil. Accordingly, with this view, I commenced late in April the operation of turning it, which, from its having become closely packed to the depth of twenty inches, with the stalks at the bottom, could only be done with the aid of a grubbing hoe, turning it in strips about a foot wide, reaching across the yard, and throwing the loosened manure back a sufficient space to allow a trench between, wide enough

to work in. After removing the whole cover from the stalks, along a strip, as before mentioned, they were easily grubbled up, by first cutting them through all along the solid edge of the strip with the hoe, it being made pretty sharp for the purpose. In addition to this pile of yard manure, I have also emptied the contents of my hog pen and stables, extending the pile several feet, and lying upon the ground when first loosened, more than two and a half feet deep. Of this manure I have used sixteen loads this spring, for truck and garden, and, judging from the size of the pile yet remaining, there cannot be less than sixty loads, which being turned once more, I intend to use for wheat next fall.

In this manner, from only three head of cattle, and the fattening of four hogs, I have made from seventy to eighty-two horse loads of manure, the highly fertilizing properties of which are abundantly attested by my own former experience. I will not say that it is stronger than the best barn-yard manure, but from its closer affinity to the nature of the soil, and greater facility for being rapidly combined and incorporated, without loss by evaporation, I have no doubt it will be frequently found, upon trial, more effective and more durable.

In the process of turning manure, thus prepared, I hold it of the highest importance to mix well the earthy and vegetable parts together. Few are perhaps aware how rapidly the earth facilitates vegetable decomposition, and to what a surprising degree *it absorbs the excess of fertilizing effluvia*, which must otherwise be evaporated during the process of decomposition. This circumstance, I believe, taken in connexion with the careful economizing of all animal excretions, constitutes chiefly the great secret (I might, perhaps, add *alleged* necromancy,) that has added already so much verdure to my previously exhausted soil, and been so profitable to me, and so surprising to my neighbours.

No farmer can imagine, that has not tried the experiment, what a prodigious quantity of rich, vegetable, and fibrous earth may be collected from corners and by-places which lie out of the way of cultivation, and which, from their retired position, have perhaps, never so much as attracted his notice. All such refuse trash, and fibrous earths and weeds, by being conveyed to his barn-yard, at intervals, during the fall and winter, and judiciously combined with its contents, will be converted into a rich, fertilizing, and durable manure, merely by absorbing and retaining *that excess of putrescent fluids and effluvia* which is otherwise lost by filtration and evaporation; that is, by soaking away and drying up. W. H.

*Pittstown, Salem Co. N. J. May 20th*, 1838.

---

## *Difference of planting Corn on Grass and Stubble Land.*

[FROM THE FARMER'S CABINET.]

It has been the prevailing custom with the farmers of New Jersey, for many years, to plough their sward for corn, that they might raise more than in tilling otherwise. I admit it is a good mode to till on the sward, and has always been allowed so by first rate farmers; but I

find it greatly to my advantage to reverse the practice, in order to prevent the worm making such sad havoc in my corn-fields. About six years ago I planted twenty acres on the sward, and out of that the worms took eight, scarcely leaving a hill to be seen. The tenth day of June I had it planted over again, thinking the worms would not disturb it so late in the season, but still they preyed upon it, leaving about one half to grow. The next spring I came to the conclusion to farm differently; instead of ploughing the sward, I ploughed up my stubble field, gave it a good harrowing, furrowed it out both ways, marled and manured every hill, and then planted the corn. In about a fortnight, I made a visit to the field for the express purpose to see if my corn had got up, or if the worms were taking it as they formerly had. I must acknowledge, that never since I have been a farmer, have I had my corn to come up as well; and I am fully satisfied, that is the best manner to farm, where we are harassed with worms and other insects. Although the field which I farmed had two crops in succession; yet, notwithstanding, the third crop was much better, sounder corn, than I had raised for many years till I adopted this plan.

The manure I had left was considerable, after taking out enough to go over the corn-field; and of the remaining part I made a compost, mixed with marl or lime, which make it much better for wheat than to put it on in separate bodies or portions.

The field that came in regular rotation to plant with corn, I ploughed up for wheat and rye. After the process of ploughing was over, I took a three horse harrow, gave it a thorough harrowing both ways, to make the furrows lay level, that the grass roots might rot. Before the usual time of sowing came on, I took what manure I had, put it on regularly, till it was gone. The part of the field which had no manure I sowed in rye, and the part which was manured I sowed in wheat. Thus I have farmed for five years, with much better success than I ever did in the same length of time previously.

---

## *Deep Ploughing—Treading in Seed—Eatable Prize Animals.*

FROM THE (BRITISH) FARMERS' MAGAZINE.

On Mr. Barker's health being given from the chair, this gentleman returned thanks, stated the great improvement in ploughing, which had resulted from the distribution of premiums, at ploughing matches, and which had amounted to £40, and after referring to other local improvements, he proceeded to say—

"I will detail to you an experiment, which I made last year in deep ploughing. I felt at first inclined to try the press, but some said try the drill, some the broadcast, and at last I selected the drill, and had the seed trodden in by my Lord Lordsdale's horses, when they were at exercise, and afterwards had a flock of 400 or 500 sheep driven over it. The produce of this land averaged seven quarters (56 bushels) and one peck an acre throughout twenty-two acres—(the total product amounting to £402 3s. 9d.—to $1,785, or $81 the acre,) and from

two bushels and one peck of seed per acre sown; and I wish you would try the experiment of treading in the wheat, or fixing it firmly in the ground, which I am sure will lead to a similar result. As regards the exhibition of animals, I think we are still wrong in principle, and in endeavoring to produce so much fat. If we paid greater attention to the increase of *eatable flesh*, I am certain a great improvement might be effected, especially in the quality of Leicestershire sheep and pigs. When our prize animals are killed, what do we find? Why perhaps five or six inches of fat to one of lean. I intended, another year, to offer a premium for that animal, which, when dead, shall show the most *lean*, and I hope some one will offer a similar pig premium. I must beg you to take my hints about fat and lean into consideration, and see whether we cannot produce a greater quantity of *eatable meat*, than we have hitherto done."

---

## *Pumpkin Seed Oil.*

[FROM THE AMERICAN FARMER.]

*To the President of the Hampshire, Franklin and Hampden Agricultural Society.*

*Dear Sir*,—As a member of your Society, I deem it to be my duty to communicate to you the result of an experiment that I have made on pumpkin seeds, in the linseed oil mill.

A number of my neighbors furnished me this year with seeds, which, together with my own, made about nine bushels, and on making the experiment, I found that they produced about six gallons of oil, and probably when the experiment is tried upon a large scale, they will produce more. I tried the oil on the screw of the oil press, and find that it answers an equal purpose, to prevent friction, as sweet oil, and of course it will be good to use on the axeltrees of carriages that are made of iron, either alone, or mixed with tar, to prevent friction. I have also tried it in the lamp, and find it to be as inflammable as lamp oil, and without the offensive smell of that oil; and the light emitted from it is of a greenish-yellow tinge, and is easier to the eyes, and, especially, when reflected from white paper, than the weak glimmering light of a candle, and of course the light is easier to read or write by, and especially to weak eyes.

I have been informed by gentlemen of medical skill, that the seeds of pumpkins have so great a tendency to promote urine in animals, as to render them unfavorable to their health; and a neighbor of mine informed me that his geese became so relaxed as to be unable to go, by eating pumpkin seeds. *These* circumstances induced me this season to cut open my pumpkins, and take out the seeds before I gave them to my cattle, and I found by the experiment last fall, and the beginning of winter, that my horned cattle, sheep and swine derived the greatest benefit, with the least expense to myself of any thing that ever I tried in the agricultural line. And from the little experience that I have had as a farmer, I am induced to think, that there is no one article that is cultivated, from which so much advantage can be obtained, by so little labour, as from the cultivation and right use of

the pumpkin. It is probable that the oil of pumpkin seeds may be made a complete substitute for tallow: and when it is once introduced into use, it will probably be worth at least $1 50 per gallon. Children can, with the greatest ease, take out the seeds when the pumpkin is cut open, with a spoon or their hands, and spread them on a floor where they will soon dry; and it is proper that they should be preserved clean, and without being suffered to mould. In the United States, where there is such an unbounded region of land, and labour above the price of produce, the main object of the farmer ought not to be the obtaining of the greatest quantity of produce, from the best piece of land, as in many places in old countries which are so crowded with population as almost to be in a state of starvation, and labour of no consequence: but the obtaining of the greatest quantity from the least labour and expense, taken together. I have no idea that fields appropriated exclusively to pumpkins would be profitable like those of corn and pumpkins planted together; for if they be planted too thick they are no inconsiderable damage to each other. There ought not probably to be more than one pumpkin suffered to grow to twenty hills of corn, otherwise they are apt to choke the growth of the corn, and not produce so many or so good pumpkins either. It costs scarce any more labour to raise corn and pumpkins in the same field than it does to cultivate it exclusively for corn, and perhaps the crop is worth a third more. On the whole, I am inclined to think that this subject is worth your notice.

I am your's, &c., respectfully,

JOSIAH WHITE.

*Northampton, March* 17, 1820.

---

[FROM THE SAVANNAH GEORGIAN.]

## *Figs, Fruit Trees, &c.*

Mr. Correa de Costa, a gentleman formerly of Madeira, now in our city, has furnished us with the following receipts, which will prove of interest to our readers engaged in raising fruit trees, and cultivating the luscious fig and refreshing grape. That our soil is peculiarly adapted to the culture of the fig none of our readers can doubt, who have passed their summers here, and enjoyed its delicious flavor.

The severe winters we have lately experienced have been, more or less, destructive to the fine trees, from which the well filled baskets which have so often tempted the palate of every age and sex, have been gathered. But with a proper attention to their culture, our tables in midsummer should always be graced with an abundance thereof. That they are a wholesome as well as delightful nutriment, we believe has never been denied by the faculty, and the planter, while he studies the best mode of planting cotton, so as to improve the staple, and earn a fair return for his labor, should not neglect his orchard, but strive to make it *abundant*. Land which would be comparatively valueless might, with proper attention, be made a source of profit to those especially who delight in seeing their farms yield those products, which a congenial soil and climate can so favorably promote. We invite

those whose practical views may benefit all desirous of encouraging the growth of the fig and vine, to send us communications, which, embodying their experience on these subjects, will tend to the developement of the resources of our soil and its peculiar properties for fruits, for which we are, more or less, dependant on more ancient countries.

If the fig can be rendered abundant, and with our limited knowledge we doubt not that it can be, why should we, as a people, think any employment, which conduces to our enjoyment as inhabitants of a bright and sunny clime, foreign to our natures?

Why can we not make our own figs, so exuberant, as that our tables in winter may be supplied with those nutritious and delightful fruits, for which we are now indebted, and so precariously, as we have recently experienced, to the inhabitants of Asia.

Then may we with truth exclaim, that as a people we recline "under our own vine, and our own fig-tree, none daring to make us afraid."

*To the Farmers of Georgia.*

American figs dried according to the system of Turkey, Portugal, and Spain:—Pluck from the tree the ripened figs, and place them on straw mats for two or three days, till they become withered; then lay them on a tin pan, powder them with wheat flour mixed with brown sugar, and put them into the oven middling warm; then let the figs dry, and tread them with the feet in order to make them flat.

In Europe, the figs, the grapes, and all kinds of fruit are dried in the oven—not in the sun. The excellent soil of Georgia is proper for the culture of fig-trees, and now, with my receipt, Georgia can supply with *dried figs* and *dried grapes*, (raisins,) all the States of America, Texas, Cuba, &c.

*Receipt for the Cultivation of Fruit Trees.*—Take off the outer bark of a fruit trees, in form of a ring, without bruising the inner bark—it will prevent them from rotting, and not to be liable to worms.

*To the Vine Growers of Georgia.*

*To preserve Grapes during the winter season, as the Spaniards do in Malaga:*—Place a large copper kettle without cover, full of warm water, and taking the grapes, bunch by bunch, plunge them quickly into the water, then tie them up separately by a string in order to get dried.

*To preserve Tomatoes and Pepper for the winter season.*—Put the tomatoes and green pepper on a tin pan into the warm oven, then let it dry, and when it will be well dried, pound it in a mortar.

---

## *The Culture of Rhubarb.*

**From the (British) Quarterly Journal of Agriculture.**

My notice of this exquisite vegetable shall be comprised in a few lines; but these, I trust, will avail to extend its culture more and more; for any thing more productive, salubrious, profitable, and expressly suitable to the purposes of the cottager, can scarcely be found in the

entire list of vegetable produciions. A few years only have elapsed since the rhubartic hybrid, *green* rhubarb was cultivated for tarts, and held in very slight estimation: but since the introduction of the larger (giant) varieties, the demand has increased with surprising rapidity. Of the two sorts which I earnestly recommended, one is called, if I mistake not, *Radford's Scarlet Goliah*, and the other is a small *red* variety which is crimson throughout when boiled or baked. These will supply the table from April to August, and suffice for every purpose.

*Culture.*—Let the ground be prepared precisely as for asparagus beds. Select clean offsets, with two or three bold eyes: the first week in March is a very suitable season. The eyes or buds of the Goliah will be of a deep, rich red, hence its name: the leaves, however, and stalks are green, though of different hues, and the latter are spotted and streaked with red. In the smaller pink variety the red tint prevails throughout.

The plants of the great Goliah should be set firmly in the soil, five feet apart, or five feet one way and four feet another: the smaller kind may be set three feet asunder, plant from plant, giving a free watering to each to settle the soil among the roots. Dry weather, an open condition of the ground, and a temperate unfrosty state of the air, should be preferred. When the growth becomes established, the ground must be kept free from weeds; and if dry weather supervene, water ought to be freely given round the roots, two or three times, with intervals of four or five days.

Not a leaf or stalk ought to be touched during the first year: and in autumn, when the leaves are all decayed, they should be laid in little trenches formed along the centre of the spaces, between the rows, sprinkled with a handful or two of salt, and covered with the earth that had been dug out. Thus the plant will itself furnish a portion of the manure that will be annually required. As winter approaches, a coating of well decomposed stable manure or leaves, or a mixture of both, two or three inches deep, should be laid round each plant, to the extent of two feet; and in the open weather of February and March, the whole bed must be forked over.

As a proof of the excessive productiveness of the *scarlet Goliah*, I need only mention, that, in the second week of March, 1831, twelve plants were set in ground, prepared for asparagus. In June, the leaves met, and the whole plot was covered. In 1832, the plants yielded profusely, many leaves measured above a yard and a half over the surface, the foot stalks being an inch and a half broad, and from two to three feet long. The outside leaves were, as required for use, stripped off by an oblique pull, not cut; the family was amply supplied till July and August, and yet the plants increased; the neighbors also were furnished with *leaves*, throughout the summer, and with *offset plants* in the succeeding spring. During the two past seasons the root stocks increased to such a size, that when it became needful to remove some, it required a barrow to contain the weighty mass that was raised, after great labor, from the soil. If any one try the experiment in a favorable soil, and with any thing like judicious management, he will scarcely fail to discover that the growth and production of the plant will exceed every demand that can be justly made upon it.

# PART III.

## MISCELLANEOUS INTELLIGENCE.

*Mode of prolonging the existence of aged Trees.*—Experience has shown that the separation by an axe or by accident, of any large branch of a tree arrived at full growth, causes a wound, which it cannot cover with fresh bark if left to itself. The contact of the air, the rain, and other atmospheric influences, the attacks of insects, and of birds, soon produce a complete disorganization of the place laid open by the wound. Little reservoirs of water soon are formed in the cut, and insects' nests are seen, which, sooner or later, occasion the decay of the tree to the very heart. Then growth ceases, the leaves become discolored, the fruit is thin and of bad quality, and at last the tree perishes.

A French agriculturist of some note, General Higonet, has lately made known his mode of proceeding in such cases. He says, "To obviate as much as possible the serious evils arising from fissures in old trees, I always adopt the following simple method, in my orchards at Veyrace, where I have trees remarkable for the quality of their fruits, and the picturesque beauty of their branches. I regularly, every year, cover over with mortar the hollow of every aged or wounded tree. The wounded part is always filled with stones, and some of the trees are so old and wasted, that a whole bushel of stones has been used in a single instance. I have practised this plan for ten years, and the good effects of it have been perfectly astonishing. Every autumn I examine all the trees, and I make a mason fall to work where any services appear necessary. A single workman, with a boy to assist, is equal to the task of finishing off three hundred trees a day. Since I have taken this precaution, I have not lost a single tree, though many of mine are exceedingly old. They have received fresh vigor, and yield an abundance of fruit. This method also succeeds with oaks, ash, and other trees. I may remark, that the lime of the mortar stimulates so actively the parts of the tree which it touches, that I have seen large hollows, filled with masonry, completely closed by the tree growing over it in two or three years after having been built up."—*Hort. Jour.*

*To Extract the Essence of any Flower.*—Take any flower you please, and bruise the leaves; then stratify them with an equal weight of common salt, in a glazed earthen vessel.—When thus filled to the top, cover it well and set it in the cellar. A month or more afterwards, strain off the essence through a strong cloth, by pressure. This essence may be purified by exposing it in bottles four or five weeks, in the sun and dews of the evening.

*Indelible Red Ink for Marking linen.*—Take half an ounce of vermilion, and a drachm of salt of steel; grind them very fine with linseed oil, to the thickness or limpidity required for the occasion. This has a very good appearance, and will resist the effects of acids or alkaline leys. It may be made by substituting other articles instead of vermillion. This ink may be used with types, a hair pencil, or a pen.

*Cure for the Ring-Worm.*—Take the root of the common yellow or wild dock, wash it clean, bruise it, put in a cup, and add vinegarsufficient to cover it. Let it stand a day or two, then apply the moisture to the ring-worm by rubbing it with a piece of the root two or three times a day, for a few successive days, and it will effect an entire cure.

*Another Remedy.*—Apply castor oil to the parts affected, and it will effect a cure in a short time.

*Curative of Cattle.—To restore the Cud.*—Take the inner bark of *elder* and *rue* each a handful; chop them small, put them into three quarts of ale; boil till the herbs are soft; then and of red pepper and anise seed, each half an ounce and a quarter of a pound of madder; let the mixture boil for a quarter of an hour; then take a handful of salt, twelves cloves of garlic, four eggs, shells and all; pound the whole tolerably fine, then add the boiling liquid to them, and put the whole to cool down to the temperature of milk. When it has been thus far cooled down, stir it well, and give the animal one-half the decoction, and the remainder in six or eight hours, taking care to keep it without water during the day.—The first dose generally restores the cud in a few hours, and the second seldom fails.

*To cure the Bloody Scour or Flux.*—Take elder buds or flowers, if green, a handful, if dry two ounces; of hyssop, celandine, mallows and yarrow, a handful of each; boil the whole well in half a gallon of beer, then add of the powder of anise seed, madder and liquorice two ounces each, and a half a pint of molasses. Give this in two drenches; keep the animal warm, and let it drink no water while under its operation; but prevent his or her thirst by giving warm messes, in each of which grate about a quarter of an ounce of oak bark.—*Balt. Farmer.*

—

*Cultivation of Vegetables.—Artichoke (globe.)*—This vegetable is but little cultivated in this country, although highly esteemed in some parts of Europe. It is a large perennial plant, which is propagated by suckers or by seed. The seed should be sown in May, and in June the plants may be transplanted like winter cabbages. Set the plants three or four feet apart, on good rich soil, and the following winter protect them by hilling the earth over their crowns.

The part used is the large globular flower head, which should be cut before the appearance of the flower. When cut they should be soaked and washed in cold water, then boiled from two to three hours, and served up like asparagus.

The plant called Jerusalem Artichoke, *(Helianthus tuberosa,)* is not properly an artichoke, but a tuberous rooted Sunflower. It has a root similar to a potato, which contains but very little nutriment, and is of but little value. It is of the easiest possible cultivation, and when it has ounce got possession of the ground, it is very difficult to eradicate.

*Beans.*—The varieties of Beans, like some other vegetables, are very numerous, and yet all of them are recommended as possessing some peculiar qualities, which in the minds of different individuals, entitles them to preference.

The varieties of *Kidney Dwarfs* may be planted any time from about the first of May, till the middle of July.

*Pole or running Beans* should not be planted before the ground gets warm and vegetation brisk, as they are very apt to rot, if planted when the ground is wet and cold.

The *Lima* is considered the richest of all beans, but it is a southern production, and requires a long warm season to bring it to perfection, consequently it is an uncertain crop in some sections, and of late but little cultivated.

*The English Bean (Vicia faba)* is a very different vegetable from the other kinds, and but little known or cultivated in this country. It is an annual plant, growing from two to eight feet high, with a single upright stalk, having pinnate leaves, purple flowers, and large flat pods growing on the sides. English beans do not bear well during the heat of summer in this country, consequently they should be planted as early as possible, in order to have them bearing before the extreme heat of summer commences. They may be planted in rows like kidney dwarfs, or the larger kinds in hills like Indian corn.—*Farmer and Gardener.*

—

*Curious Discovery.*—Extract of a letter from a practical chemist, in London, to his brother in this city, dated 6th January, 1838: "An apparently most extraordinary discovery has been made by a Mr. Joyce, a gardener. It consists of a heating apparatus, adapted for *all* purposes, without the production of any smoke or any smell—positively a production of heat *alone*. It is, as I have just seen it, contained in an Urn, the sides of which are so hot that it cannot be touched. It is moveable; may be taken into a carriage or into a room like a lamp, or in any other way. I have closely examined it and can discover no source of heat. The fuel, they say, will not cost three pence for twelve hours to heat a large room; and this heat may be raised to such a degree as to melt the vessel which contains it. The discoverer will not give any information, as he intends taking out a patent for all the countries in Europe where he can be protected, and disposing of them all simultaneously. If it is a humbug, it is a clever one. The heat will last for thirty

hours without any renewal. The only conjecture I can form about it is, first that there is no fire whatever in the vessel, and no fuel consumed; secondly, that it is some chemical process; snd thirdly, that it is produced by the action of carbonic acid gas, which is subjected to immense pressure, and thereby liquified or formed into solid carbonic acid, by which action an immense quantity of latent heat would be converted into sensible heat. All this is a mere surmise of mine. I can think of no other method but the condensation of some gas for the production of heat alone. The degree of cold produced by Thilorier, in making the converse experiment with solid carbonic acid, was 140 degrees below zero.—*Ib.*

—

*Natural Coke.*—The Richmond Euquirer says:—"There seems to be no end to the mineral treasures of Virginia. Yesterday we neard of another discovery, which, according to the present circumstances, is destined to prove of incalculable service.

The reader will recollect that during last autumn, we spoke of a rich vein of iron ore, which was in a course of exploration, on the south side of James' River, near the coal pits, and from two to three miles of the river. The ore has been further opened, and we are happy to learn promises to be of great value. It is under the auspices of John Heth, Esq., and is immediately on the new rail road, which will soon be opened, from the coal pits to the river. But the discovery embraces a new object—a large rich bed of *natural* Coke, which is just below the iron ore, and is suspected of being in a large field, and of being near seventeen feet thick.

The Coke was first discovered by those who are engaged in laying down the rail road. They thought of burning it as fuel. and the experiment has answered.

It is said that Professor Rogers has pronounced it natural coke—and we understand that Mr. Deane is about to try its virtues in his iron rolling mill.

Should it correspond with the indications which have so far transpired, it will prove a source of great wealth to its worthy, liberal and enterprising proprietor, as well as advantage to the rising manufactures of Richmond."

—

*Loin Distemper in Hogs.*—By this I mean the loss of the strength of the hinder parts. One of my best hogs was found the other day unable to walk, from falling behind; and as I never saved one thus diseased, I gave him up for lost. I, however, separated him from the herd, and concluded I would nurse him until he might die, as is my practice—being opposed to killing any of my animals that may chance to sicken or get wounded.

Now, as the treatmemt, or something else, has relieved him, I annex it. I poured warm tar upon his loin; when this dried, I repeated it—pulling out the hair adjacent. Simultaneously with this, I mixed one tea-spoonful of arsenic in corn meal dough, which he ate freely. He is now on his feet and doing well. Whether my hog recovered in consequence of the treatment, or in spite of it, I cannot tell; but one thing I know—all that had it before died, and this one lives. I do not wish to get the people to poisoning their hogs with arsenic; but as it is a gone case any how, those who may ventnre upon the practice, I hope may have the same good luck.—*Tennessee Farmer.*

—

*Pig Trough.*—A writer in the Genesee Farmer, a few years ago, described a method of making this article, which we copied into the Maine Farmer, and which we have also practised, and find to be a great improvement.

It is simply this. Take two pieces of board or plank of the length that you wish your trough; put two of their edges together at right angles, thus V, and nail them strong Then take two pieces something longer than the trough is wide, and nail upon the ends. Then take some clay mortar and fill up the chinks to prevent its leaking, and it is done. The food settles down in the angle at the bottom of the trough, and the pig will *fay* his sharp under jaw into it completely, while the long ends prevent its being upset so easily as the old kind. Any body who can saw a board off, and drive a nail, can make one. If you have no trough for your pig, just try your hand at making one on this plan.—*Maine Farmer.*

—

*Recipe for taking Hives without destroying the Bees.*---Having always thought that there was great inhumanity in the old plan of *destroying* the bees, in order to take the honey, we determined to try the more humane plan practised by the French of robbing them of their sweets without depriving them of life, and we have put the plan twice into operation the present season, with entire success. And as, besides the humanity of the process, it has economy to recommend it, we

deem it our duty to lay the method before our readers, in the hope that we may be instrumental in saving many lives of those industrious workmen, and of securing their labors to their owners for numbers of years. The method, which is easy, is as follnws:

In the dusk of the evening, when the bees are quietly lodged, place a tub near the hive, then turn the hive over with its bottom upwards into the tub, cover the hive with a clean one, which must be previously prepared by washing its inside with salt and water, and rubbing it with hickory leaves, thyme, or some other aromatic leaves or herbs. Having carefully adjusted the mouth of each hive to the other, so that no aperture remains between them, take a small stick and gently beat round the sides of the full hive for about fifteen minutes, in which time the bees will leave their cells in the lower hive, ascend and adhere to the upper one. Then gently lift the new hive with all its little tenants, and place it on the stand from which the other hive was taken.

This should be done about midsummer, so as to allow the bees time to provide a new stock of honey for winter's use. If care be observed, no danger need be apprehended.----*Baltimore Farmer.*

---

*Sugar Beet with Corn.*—A friend has mentioned a plan of growing beet roots that has been adopted by a distinguished farmer of Chester Co., Pa., which is said to have been very successful. They are grown in alternate rows with corn; the corn being planted in rows six feet apart, a row of beets intervenes; the corn crop is very little if at all diminished; the labor is not much increased, and a very good crop of beets is obtained; the shade of the corn is supposed to be favorable to the beet. This plan may be worthy of a trial by those who have not prepared a piece of ground for roots, and who are anxious to have good winter food for their cattle.---*Baltimore Farmer.*

Ezekiel Rhoads states, that within one week after his sugar beets were exhausted, the butter from three cows was reduced from twenty to fourteen pounds per week. His butter was in much higher repute while feeding on the sugar beet than it had ever before been during winter.—*Farmer's Cabinet.*

---

*Beet Sugar.*—We have great pleasure in announcing to the public an important discovery, made in the manufacture of sugar from beets. It has been the result of ten years study and experiment. Samples of the sugar made by this process, finely crystallised and of as good a quality as the common Havana white sugar, and disinfected, as far as we could perceive, of any of the earthy taste, which has been so strongly objected to in beet sugar, we have seen; and we have seen so much of the process and such results of the process as to leave little doubts of its success.

The advantages promised by this mode are the following:

1. It is adapted to obtain from the raw material eight or ten per cent. of sugars or as much as it contains.
2. The raw material is put in a state of preservation so that the sugar can be manufactured at any season of the year, at the convenience of the farmer.
3. The process is simple and easily understood.
4. It requires no expensive machinery, and though improved machinery would facilitate the process, yet it can be made to advantage with no other machinery than what is to be found in every farmer's kitchen.
5. At present prices of labor and sugar, there is reason to believe that every farmer can raise and manufacture his own sugar at a very small expense compared with what the purchase of sugar from the stores now costs him.-- *N. E. Farmer.*

---

## ERRATA.

Vol. xii., p. 6, line 14, from foot, for "best mule suckling," read "*male* suckling."

" p. 72, " 7, " " for "North-Carolina," read "South-Carolina."